THIS WEEK'S National Petroleum NEWS

Index to Coming Meetings

West Virginia Oil Marketers Association, Daniel Boone Hotel, Charleston, W. Va., June 12, 13.

American Society for Testing Materials, Atlantic City, N. J., June 23 to 27.

North American Gasoline Tax Conference, King Edward Hotel, Toronto, Ont., Sept. 2, 3, 4.

American Chemical Society, Hotel Gibson, Cincinnati, O., Sept. 8 to 12.

National Petroleum Association, Hotel Traymore, Atlantic City, N. J., Sept. 17, 18, 19.

National Safety Council, Petroleum Section, Pittsburgh, Pa., Sept. 29 to Oct. 4.

Big Four State Jobbers Convention, (Missouri, Iowa, Kansas and Nebraska) Kansas City, Mo., Oct. 14, 15, 16.

Independent Oil Men of America, Marketing Congress and Exhibit, Statler Hotel, St. Louis, Mo., Nov. 2, 3, 4, 5.

American Petroleum Institute, Stevens Hotel, Chicago, Nov. 10 to 13.

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ROY H. CRAIG, vice president of the Galena Oil Corp., is the man who is responsible for this company, long known in the industrial lubricating field, turning also to the motor oil field with a new line of products.

He learned the oil business while with the Standard Oil Co. of California. He was for five years a locomotive engineer over the Sierra Nevada mountains, and he holds a license as Chief Mate of Oceans. He came to the Galena as service engineer and was successively district manager in Denver, Cincinnati, St. Paul, and San Francisco, and a year ago was made vice president and director.

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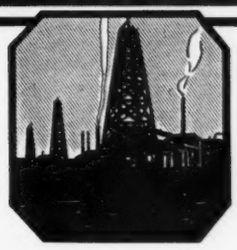

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Vol. 22 **CLEVELAND, June 4** **No. 23**

Oil Board Endorses Unit Operation; Sees Gas in Bigger Role

WASHINGTON, May 28

UNIT development and operation of oil pools is looked upon by the Federal Oil Conservation Board as the future method by which crude production will be kept in balance with demand, and the interests of the public still be safeguarded.

This is brought out in the fourth report to the President submitted by the oil board since its organization in 1924, which was today transmitted to President Hoover by Secretary of the Interior Wilbur, chairman of the board. Its other members are Secretary of Commerce Lamont, Secretary of War Hurley and Secretary of the Navy Adams.

The nearest to a recommendation to Hoover, or a suggestion pertaining to the relations of state or national government to the oil industry is a statement of the need for recognition by the courts of the community of interest of all landowners in the oil and gas content of a pool, this to aid in the adoption of the unit operating principle by the industry.

Following the submission of the second report of the oil board to the President, in January, 1928, Hubert Work, then Secretary of the Interior, said that, upon completion of the third report as planned, if in the meantime practical conservation measures had not been adopted by both the government and the oil industry, the board would make certain specific recommendations to the President in the interests of conservation of the nation's petroleum resources.

Concerning the need for recognition of the community of interest of landowers in the oil and gas of the field upon which their property is located, as distinguished from the earlier views held of their right to the oil and gas brought to the surface on their own property, this fourth report of the board stated:

"Some affirmative action by either court or legislature, whereby the coequal rights of all the owners may be recognized and protected, is sorely needed, and this regulatory action may well be predicated on the magnitude and gravity of the public interest involved.

"The principle of justice between owners would seem to be incentive enough, but if more grounds for action are required, good technology and good economics amply justify the acceptance of unit operation as in the public interest.

"Now that natural gas has taken on country-wide popularity as the best of all fuels and is recognized as even more valuable and essential in the prevention of actual waste of oil, through nonrecovery, the act of permitting unused gas to escape calls for the prompt exercise of the police power of the state.

"Any method in the development and operation of oil pools that is more efficient than that encouraged, if not required, under the old competitive system of getting the other fellow's oil first, should not only be accepted but be approved under authority of law. Unit operation is that more efficient method."

From the standpoint of the industry itself, the report concludes by stating that self-regulation in the handling of an oil pool means both efficiency development and operation and in the determination of equities among the owners and that this can best be accomplished by unit operation.

"By this plan only can each and every owner secure full economic benefits," states the report. "By this plan only can the public be assured of the largest possible supply of oil and gas from a particular field, won from the ground at lowest cost, and over a period measured by market demand rather than fixed individualistic greed.

"Justice to all owners and benefit to the public can both result from this observance of natural economic

High Points in Board's Report

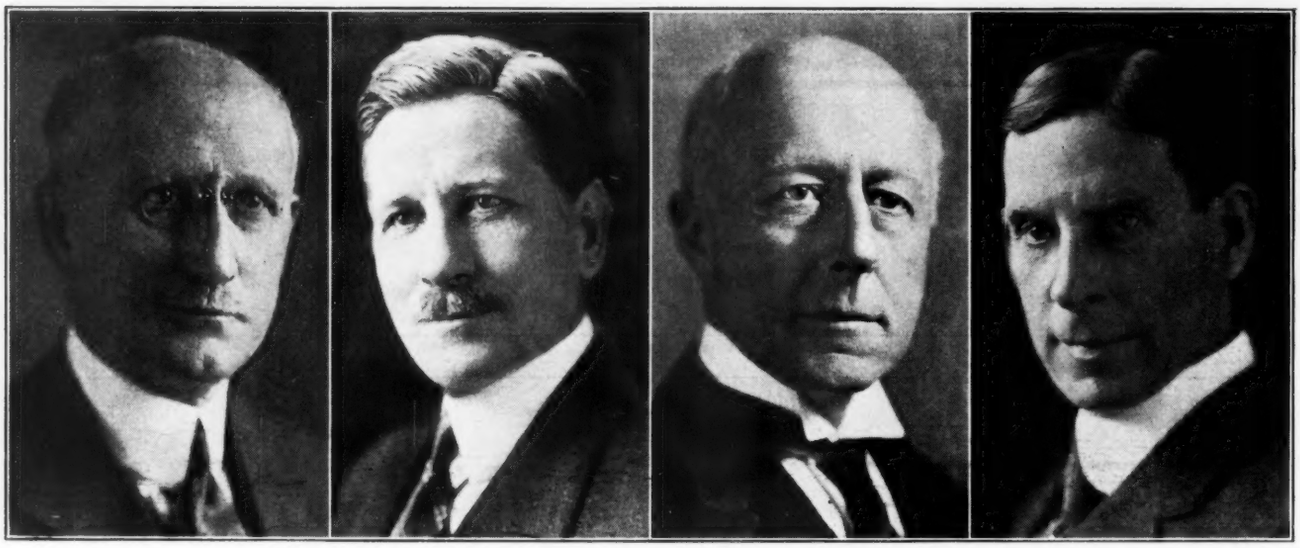
UNIT operation of oil pools endorsed as remedy for overproduction of crude, and also as safeguarding the interests of the public.

Action by the courts or legislation affirming the coequal rights of all property owners to oil and gas in a given pool is seen necessary as an aid to unit operation.

Function of the refiner is set forth as gauging the composite demand for petroleum products in his own marketing territory as a guide for his commitments of crude.

Voluntary proration methods as carried on by the industry in flush areas in Texas, Oklahoma and California, are approved.

While the board's estimates of future oil reserves in this country have been revised in the light of late discoveries the need for a conservation policy is reaffirmed.



Present members of the Federal Oil Conservation Board. Left to right, R. P. Lamont, Secretary of Commerce, Patrick J. Hurley, Secretary of War, Chas. Francis Adams, Secretary of the Navy, and Ray Lyman Wilbur, Secretary of the Interior, and Chairman of the Board

law in recognizing the oil pool as the natural unit."

Thus, the Federal Oil Conservation Board, formed by Coolidge in 1924, to study our oil resources with a view to practical conservation, places its stamp of approval upon the unit operation principle as a conservation measure. The unit operation principle was endorsed by the directors of the American Petroleum Institute last December and a committee organization later established to work for its acceptance within the industry.

This fourth report of the oil board goes at considerable length into the recent expansion in the natural gas industry and its effect on the oil industry. It calls recent developments in long-distance transportation of natural gas one of the most noteworthy achievements in modern economic history.

It states that with the expansion of facilities for distributing gas and the public demand for this fuel, natural gas is assuming greater importance in the balance sheet of the oil operating company.

"The oil industry now sees substantial profits in this fuel of high heating value which was previously disregarded," says the report on this subject. "Now that this natural resource, produced with the oil, has taken on a commodity value at the well, as a result of long-distance pipelines, opinions and policies have changed.

"Moreover, production engineers are now pointing out the even greater importance of gas as the most efficient agent in extracting oil from the ground, with the result that it is realized that the prevention of the escape of gas is highly desirable in the practical business of producing oil."

The report outlines the major gas pipeline projects recently completed and says that, while the vast supplies of natural gas were known and the markets for such fuel also known, it was the improved methods of pipeline construction and operation, which decreased the cost of long lines, that brought about recent developments in the gas industry.

Under "Economics of the Petroleum Situation," the board reviews production and demand statistics for crude for the past few years, setting forth the lack of stabilization in the industry's principal markets, for crude oil and gasoline, because of the failure of the industry to relate the known demand in terms of principal refined products to its production of crude.

"It is the function of the refiner, or manufacturer of petroleum products, to gauge this composite demand, as applied to his own marketing territory and, through his interpretation, to be guided in his commitments for the purchase of crude oil," reads the report.

"When the refiners' crude oil purchases are properly coordinated and when the composite public demand for refined products has been correctly interpreted, the crude oil requirements would be equivalent to total domestic and foreign demand.

"Under conditions of crude oil supply available at low prices, however, the refiner may increase his crude oil throughput and, concurrently, his output of refined products in excess of the public demand. Crude oil production may have been stimulated at the same time that refinery stocks of refined products were being increased and, during the period of correction, the condition of overproduction would tend to become general throughout the industry.

"An unbalanced production is the inevitable result of unwarranted development, whether this be in crude oil production, refining capacity, or in transportation facilities. Increasing capacity for production far in advance of growth in demand leads naturally to overproduction and disorganized markets."

The report takes issue with the statements to the effect that the general over-supply of oil in this country is due primarily to imports and not to domestic production. It says on this point:

"Taken alone, statistics of crude oil production and imports, which make up supply, have little significance since the other or demand side of the balance sheet appears for the most part in refined products, whether for domestic consumption or export. In this manner only can the complete picture of supply and demand in the petroleum industry be presented. The surplus output of our refineries is exported; in 1929 these exports included gasoline in an amount equal to 14 per cent of our total output; kerosene, 34 per cent; and lubricants, 32 per cent. These exports of refinery products were valued at over one-half a billion dollars and constituted the third largest item in the foreign trade of the United States.

"A supply and demand table based on crude oil figures alone would show as domestic demand the requirements of the domestic refineries, but if our foreign trade in refined products were to cease entirely, the refinery demand for crude would have to fall at least an amount representing the exports of gasoline, and there would still be an embarrassing overproduction of kerosene, lubricating oil, and wax.

"In other words, between 10 and 15 per cent of the crude produced and run to refineries is represented on the consumption side of the balance sheet by refined products for foreign markets. To that extent, the consumption of crude oil by domestic re-

(*Continued on Page* 30)

What *Good* Business Brought Us

By V. B. Guthrie
N. P. N. MANAGING EDITOR

A **14 per cent increase** in demand for its principal product would be taken by almost any business as representing a very healthy condition for that business.

The refining industry, the first quarter of this year, had an increased demand for gasoline of that extent—which is considerably greater than is estimated for the total increase in gasoline demand for the year.

How did the industry fare on this **good** business?

The wholesale price for gasoline is, if anything, a little less than at the start of the year, despite the fact the industry now stands at the threshold of its season of greatest demand.

The refining industry increased its stocks about a fifth during this period of exceptionally good business—from 43,000,000 gallons to 55,000,000 gallons at the end of March. They now stand at about that figure.

The industry is now running crude to its stills at a rate that will bring about an increase in its gasoline stocks for all 1930,—and there is probably not an individual refiner in the country who will not say that stocks now are more than the industry is economically justified in carrying.

Apparently, we cannot look for stable conditions, even during periods of exceptionally good gasoline business, **until the individual refinery executive is willing to apply to the operations of his own company the operating yardstick he thinks the entire industry should follow.**

fineries represents other than 'domestic demand.'"

The report devotes another section to "Revision of Estimates of Oil Supply." Here it sets forth the principal factors that have changed the general opinion as to the extent of underground reserves as (1) new and more accurate methods of geological exploration, (2) discovery of deeper prolific sands, (3) improved operating methods, and (4) rejuvenation of partially depleted fields. Regardless of these changed estimates, the board's insistence on the necessity of a conservation policy on the part of the government is unchanged. It says along this line:

"It matters not whether the oil reserves of the United States are five times a billion barrels or twenty times a billion barrels, the supply is limited and can not be increased. Even the most generous estimates place the date at which our oil reserves will be practically depleted, under present rates of consumption, in the comparatively near future. In the interest of national defense and industrial prosperity this generation should not be permitted to waste this irreplaceable natural product and thus seriously handicap future generations of Americans."

Gulf Buys Paragon Refining; Obtains 400 Stations

CLEVELAND, June 2

THE Gulf Refining Co. has purchased the Paragon Refining Co. For $10,000,000 in cash the Gulf company obtains about 400 service stations in Ohio and Detroit, and a refinery at Toledo, O. The Paragon properties will be taken over as soon as possible; about two months being required for the change.

The purchase is the first major marketing acquisition of the Gulf interests. It extends Gulf's marketing territory into Ohio and Detroit.

All properties of the Paragon company were purchased excepting the Valvoline Oil Co. Valvoline was purchased last year by Paragon, and will continue its separate operations from headquarters in New York. Valvoline is a marketer and exporter of lubricants from its plants in western Pennsylvania.

Stock of the Paragon Refining Co. will be liquidated at $50 a share on the preferred, and between $16 and $17 a share on the common. The preferred stock carries the provision that $50 be paid in case the company sold out. The amounts collected on accounts receivable will help determine payment of the common stock.

The Paragon company was owned by the Edwards interests of Cincinnati. E. W. Edwards was president. He is president also of the Valvoline Oil Co.

The Paragon company was marketing all the gasoline it produced, and was buying some in the market, through its outlets. In Michigan there were about 175 service stations; about 125 in Detroit and the others in Pontiac and Lansing. In Ohio the company had about 200 stations. Distribution in the larger cities was through 66 stations in Cleveland, 38 in Toledo, 20 in Cincinnati, 14 in Columbus, and 14 in Canton.

The refinery at Toledo, O. has a crude oil charging capacity of about 9000 barrels daily, and two cracking units. The company had its fleet of tank cars, tank trucks, and bulk plants.

The Paragon Refining Co. was organized in 1916. It marketed its gasoline in the tank car market, but in recent years it began acquiring marketing outlets. Large purchases were made in 1928. The Wayco Oil Corp. at Detroit was purchased from the Schlee interests, and this company continued to operate under the name of Wayco. The other large purchase was the retail outlets of the Brooks Oil Co. in Cleveland. These stations were operated under the name of Paragon.

The change in marketing policy is reported to have placed the company in a better position than any time in the past 10 years. About a year and a half ago 7 per cent dividends were resumed on the preferred stock. Total assets of Paragon on April 30 were listed at $16,912,044, and Valvoline stock was carried on Paragon's books at $6,400,000.

Purchase of Paragon was through the Union Trust Co. of Pittsburgh. The Union Trust and Gulf are Mellon interests.

G. R. Nutty, vice-president of the Gulf Refining Co., declined to comment to NATIONAL PETROLEUM NEWS about expansion of the Gulf's market through the Paragon purchase.

Use of "Ethyl" Is Barred To Dallas Firm

WASHINGTON, May 29.—J. Merrell Redding, of Dallas, Texas, doing business as the Ethyl Gas Co., has been ordered by the Federal Trade Commission to stop using the word "ethyl" in the advertising and sale of a product designated "Ethyl Gas," or "Ethyl Gas Anti-Knock" and used in treating motor fuel.

The commission found that, at the time Redding adopted the trade names containing the word "ethyl," the Ethyl Gasoline Corp., of New York, had been using the same word in the sale of its anti-knock fluid.

The commission's order also bars Redding from using the word "anti-knock" in his advertising and sales literature unless his product actually contains ingredients which produce anti-knock properties when mixed with motor fuel or gasoline.

Redding is also prohibited from furnishing dealers with signs for gasoline pumps similar in appearance to signs supplied to dealers by competing distributors or sellers of motor fuel. He is also directed to cease copying in general dress or appearance other advertising of competing distributors.

Findings of the commission show that Redding furnished his customers signs for pumps similar to signs furnished dealers in the product of the Ethyl Gasoline Corp., and that he colored his product so that, when mixed with gasoline, it was similar to the Ethyl Gasoline Corp.'s product.

Some weeks ago, when the Federal Trade Commission issued a cease and desist order against William H. Johnson, of Dallas, doing business as the Ethylene Sales Co., J. Merrell Redding was named as one of respondents. In that case the complaint against Redding was dismissed without prejudice.

Pure Oil Buys Mill's Oil In Syracuse, N. Y.

CLEVELAND, June 2.—The Pure Oil Co. is expanding its retail marketing facilities in central New York state through the purchase of the C. E. Mills Oil Co., Syracuse. The sale involved $1,000,000 in cash and Pure Oil stock, and Pure Oil will take possession at once.

The C. E. Mills Oil Co. will be operated by Pure Oil as the Mills Petroleum Corp. The property includes 18 service stations and about 35 dealer accounts in Syracuse and six stations and about 50 dealers in neighboring towns; a bulk plant of eight acres and 3,000,000 gallons storage capacity on the Barge canal and on two railroads in Syracuse; and about 12 trucks.

Pure Oil entered the Syracuse market about two years ago with a bulk plant and service station.

Henry E. Mills, president of the C. E. Mills Oil Co., will be retained by Pure Oil in Syracuse, as will his son C. E. Mills, and his son-in-law E. C. Drake. The C. E. Mills Oil Co. was one of the old-time Independent jobbing companies. It was started more than 50 years ago by C. E. Mills, father of Henry E. Mills.

Jobber's Finance Plan Boosts Sales 35 to 275 Per Cent in Year

By E. L. Barringer
N. P. N. STAFF WRITER

SALINA, KANSAS.

A YEAR ago the Kent Oil Co., Salina, Kans. organized its own finance company to handle credit sales of petroleum products to its farm customers. At the close of the first year of operation the company found the following changes in its marketing position.

Sales at five bulk stations using the finance plan increased from 35 to 275 per cent in 1929 over 1928, and the sales were for cash, as far as the company was concerned.

Every farmer using the finance plan in 1929 has signed another contract for his 1930 petroleum needs.

Some old accounts, thought past collection, were settled by farmers desiring to sign contracts. Some undesirable customers, who bought small quantities on credit, have gone to another oil company or have signed contracts.

The bulk station that increased its sales 275 per cent sold, in the first quarter of 1930 half as much goods as in all of 1929.

Charged off accounts were reduced about $4500 in one year.

The finance company had a good year also. It received 10 per cent on its money, and it was not necessary to foreclose any mortgage. About 75 per cent of the mortgages were paid when due. The others were held over because weather conditions did not permit the farmers to harvest or market their crops to the best advantage.

The finance plan for farm petroleum credits was evolved by the Kent Oil Co. in October, 1928, and started operations immediately. R. L. (Rex) Kent, president of the Kent Oil Co., worked out the plan assisted by George P. Nissen, vice-president of the company.

Both men were reared in Kansas and knew the farmer's credit situation. Bankers had thrown the burden of financing the farmer's petroleum needs on the oil companies. This policy leaves the oil company to carry the farmer over the summer and to collect at harvest time, if the crop is a success. Other industries, however, financed the farmer with a mortgage. The equipment manufacturers, for instance, sold machinery on credit, but took a mortgage on the crop and other chattels to protect themselves.

From the standpoint of the oil industry these two men knew farmer's credit conditions also. They knew that, in 1927, they lost $130,000 worth of business through curtailing credits. They knew that, in 1928, half their business was on credit. They knew that it cost 11 per cent to extend credit, and that credit for more than 90 days cost more than the profit derived from the transaction. And on top of this they realized the jobber's average margin was dwindling each year.

Mr. Kent sold his plan to a few friends, the Farmers Finance Co. was formed, a charter obtained from the state, and the Kent Oil Co. embarked on a new credit plan.

On the left, R. L. (Rex) Kent, and on the right George P. Nissen

Salesmanship of the credit plan is through representatives of the Kent Oil Co. The farmer estimates how much money he will need to carry him along on his petroleum needs, and gives a mortgage.

The finance company employs an ex-banker to handle its end of the transaction. He receives the mortgages from the Kent Oil Co. men, checks the records, and if acceptable he files the mortgage at the court house. Thus the whole transaction is handled by experienced men—Kent Oil Co. men who know the farmer's petroleum needs, and a financial man who knows good security from bad.

Security for the petroleum products to be purchased is based on the farmer's crop. The finance company, however, protects itself further by taking also a chattel mortgage on live stock, machinery or buildings, so in case the crop fails it will get its money.

After the mortgage has been approved, the note to the finance company signed, and the farmer contracted to buy petroleum products not to exceed the amount specified, the farmer and the oil company are all set. The finance company gives the farmer a blank check book. On the inside front cover is a memorandum of the amount of credit he has. When the oil company makes a delivery the farmer pays with a check. This check is handled as cash through the Kent Oil Co. When the check arrives at headquarters in Salina it is presented for payment at the finance company.

The plan has its benefits for all parties concerned. The oil company receives cash for its goods. The finance company receives 10 per cent on its money, and has amply secured itself against loss, even in the event of a crop failure.

The farmer also is benefited, as much as any of the other parties. In the first place, he is able to make

P. O. Address.....Miles
Miles.....

Salina, Kansas.....192... $.....

.....days after date,
for value received, I, we, or either of us, promise to pay to the order of
THE FARMERS FINANCE COMPANY
..... Dollars
At The Office of THE FARMERS FINANCE COMPANY, Salina, Kansas
with interest from maturity until paid, at the rate of ten per cent per annum, payable annually. Protest and notice of protest waived.

No.....
When due.....

CHATTEL MORTGAGE—Short Form

THE UNDERSIGNED, of.....County, Kansas, for the purpose of securing the payment of.....DOLLARS and interest, according to the conditions of.....promissory note.....of even date herewith, one note payable.....192....., for $....., and one note payable.....192....., for $..... do hereby sell and mortgage unto

THE FARMERS FINANCE COMPANY, Salina, Kansas,

or their assigns, the following property, now in..... possession, to-wit:
.....
together with all increase, owned entirely by.....without any incumbrance.

This mortgage, if upon growing crops, is intended by the parties hereto to include and to cover all crops now sown or planted or which may be hereafter sown or planted during the current year, in all stages from the seed to the market.

Permission is hereby given to the said mortgagor to give a first mortgage upon growing crops as security for the payment of premiums of hail insurance, upon condition that the said insurance shall be payable to this mortgagee as his interest may appear.

PROVIDED, That if the undersigned shall pay the said debt, then this mortgage shall be void. And it is hereby agreed that if default be made in the payment of said debt, or any part thereof, or if any attempt be made to dispose of or remove said property from..... ..... County, or if at any time the payee of said note shall deem the said debt unsafe or insecure they are hereby authorized to enter upon the premises where the said property may be and remove and sell the same at public or private sale, with or without notice, and out of the proceeds retain the amount then owing on said debt, with expenses attending the same, rendering to the undersigned the surplus, after the whole of said debt shall have been paid, with charges aforesaid. If from any cause said property shall fail to satisfy said debt and expenses, I, or we, covenant and agree to pay the deficiency.

WITNESS,.....hand and seal, this.....day of..... ..... 192.....
....., Witness .....

CONTRACT

....., 19.....
....., Kansas.

The undersigned purchaser agrees to buy from
THE KENT OIL COMPANY
gasoline, oils and greases, and other petroleum products in an amount not to exceed..... .....Dollars, and the undersigned The Farmers Finance Company agrees to honor all drafts drawn upon it by the purchaser payable to The Kent Oil Company, for said merchandise in an amount not exceeding said sum, subject to the terms and conditions of a note and chattel mortgage executed herewith by the purchaser, payable to The Farmers Finance Company.

The Farmers Finance Company guarantees that The Kent Oil Company will honor orders for merchandise by the purchaser in an amount not to exceed said sum.

In the event that the purchaser's orders for merchandise do not exhaust the full amount of the credit extended, or in the event that the purchaser defaults in the performance of his contract, or that the payee of the note deems the security insufficient, The Farmers Finance Company agrees to credit the note and mortgage with any unused portion of the said credit extended.

The purchaser is privileged to make payments on the note and mortgage at any time prior to the maturity of the note.

It is agreed that the note and mortgage executed by the purchaser may be assigned, but that this contract may not be assigned.

This contract is made in reliance upon the warranties of the purchaser contained in the note and mortgage executed herewith, and if said warranties are false, The Farmers Finance Company reserves the right to declare this contract null and void.

This contract becomes in full force and effect upon its signature by the purchaser and approval by an authorized officer of The Farmers Finance Company.

THE FARMERS FINANCE COMPANY

By..... .....
Sec'y Purchaser.

The Contract, Mortgage and Note of the Farmers Finance Co.

money on the mortgage, in fact he may make twice as much as the carrying charge. When the farmer was buying on credit he frequently did not pay in time to get a cash receipt for the quarterly refund statement on the state gasoline tax, and lost his refund. Now that he pays cash he receives his receipt and is in a position to collect the tax refund. In most cases the amount of gasoline purchased will provide a refund far exceeding the interest carrying charge.

Another benefit to the farmer is a peace of mind that his petroleum needs are settled for the life of the mortgage. He knows exactly where he stands with the oil company, that he will not be cut off, and that he will not be "hounded" for payment the minute the oil company suspects he has a dollar in his pocket. The farmer places his petroleum purchases on the same level with his other purchases that involve a mortgage, and he is squared around on his financial obligations.

These benefits to the farmer have paved the way for acceptance of the plan. Farmers have told the Kent Oil Co. that the plan helped them make a profit on their crop because they were on a sound financial footing. Further proof of the farmer's acceptance is that every one using the plan in 1929 came back for another contract in 1930.

While the farmer knows the plan is from the Kent Oil Co., and he is signing a contract to buy so much petroleum goods, in dollars and cents, from the Kent Oil Co., yet the two organizations are separate. Kent Oil Co. officials who are connected with the Farmers Finance Co. use assumed names when they sign finance company papers.

Many jobbers have been interested in the plan. National Petroleum News published an article[1] on the finance company last year, and its representatives have been asked by mid-western jobbers as to the results after operating one year. Independent jobbers in Kansas have communicated with the Kent Oil Co., and the Standard Oil Co. of Indiana had a representative look into the plan.

"It became necessary, if we were to survive in the profitable business class to provide or adopt ways and means to make every department of the business carry its own burden. The finance plan as it is being used now was the result," said Mr. Nissen.

"Of course, there was some doubt when the plan was put into effect at five of our stations about the loss of business which might result from the refusal of some farmers to do business with us on the basis of the finance plan which called for some interest on coverage charges. The plan of course required quite a little missionary work but it was agreeably surprising to us the way the plan was accepted by the farmers when it was thoroughly explained to them."

"The farmer is generally a fairly good business man although he may not display it to you for obvious reasons. In our case they seemed to realize the many advantages of having credit with the oil company and avoiding the unpleasantness of being refused money from the banks just at the time when they needed it most for harvesting their crops.

"They, of course, also realized the advantage of being able to obtain a refund of approximately 18 per cent from the state for the gasoline used for agricultural purposes. This saving alone amounted to considerable more than the interest and handling charge. But the real point of advantage to the farmer was that he could *get his products* when and how he needed them.

"It might be interesting to know that at every station where the plan was put into effect we showed a very material increase in business, ranging from 35 per cent to 27 per cent over the business conducted on a credit basis the year before. We would have been satisfied to take less volume with guaranteed payments for the products sold.

"Mouth-to-mouth advertising is perhaps the best that can be obtained and it seemed to be spread pretty generally throughout our territory, so that farmers at stations where the plan

[1]NATIONAL PETROLEUM NEWS, May 8, 1929, page 106 "Kansas Jobber Forms Finance Company to Sell on Cash Basis," by Allen S. James.

was not in effect had requested us to give them the same advantages that had been given to farmers at other stations which we operated.

"Every farmer who used the plan last year has again contracted for his products with us which indicates to us that the plan is not only sound from our standpoint but that it is evidently entirely satisfactory to the farmer. If both parties to a contract are satisfied it seems to us that it is well to assume that such a contract is made on a basis where it will be fair to both parties and we have endeavored to make all of our transactions with farmers on that basis—fairness, quality and service.

"The offering of those three to any man and the fulfillment of them can only mean good will and good business with it. A satisfied customer is the best advertisement, for he will gladly tell his neighbors and this seems to be just what has happened out in our territory. This, of course, does not imply that we have the business 100 per cent and that other companies are not getting any of it but it does indicate that we are getting business that is profitable to us.

"We have naturally been obliged to refuse quite a number of requests for credit on account of the inability of the party desiring credit to furnish sufficient collateral to justify the extension of credit.

"It has been very pleasing to us to have so many farmers tell us that only through our method of handling credits were they able to profitably handle their crops last year. This, of course, was due to their inability to borrow money from the banks for purchasing petroleum products.

"The plan has had many effects on customers previously doing business with us but discontinuing when they could not pay their account. A number of these customers are now trading with us for they saw the advantage of the plan and, in contracting with us included their old account, which may or may not have been charged off but which may have been considered as a doubtful account, and its collection difficult. This has enabled us to make collection of many of these old and charged off accounts and in such a way as to create good will instead of an unfavorable attitude toward us.

"The plan has had the effect of eliminating small and unprofitable accounts which previously purchased on credit. These accounts either purchase from other companies or pay us cash for the products they buy, knowing that our representatives have instructions to sell for cash or on the finance plan. In this way it has had the effect of increasing our cash sales and reducing accounting costs, which, on small accounts, are more than the profit derived.

"The plan has enabled us to increase our sales with many customers who previously purchased their products from two or more companies. These customers having the finance contract now purchase their entire requirements from us. True, we may have lost some customers on account of this plan but, on the other hand, we have gained a much greater per cent by far than the few customers which might have been lost to other companies.

"At some of our stations every single customer was retained with a good percentage of increase which indicates why one of our stations made 275 per cent increase in its business for 1929 over 1928.

"It has had a very material effect on the amount of charged off accounts. We figured that we have saved in the neighborhood of $4500 in charged off accounts for the one year.

"Approximately 75 per cent of the finance notes were paid on dates due although many of those were not paid on dates due because of climatic conditions not permitting the farmers to harvest their crops and market them. Others requested permission to delay payment on their notes thinking the market price of their grain would increase within 30 days. On the whole the attitude of the farmer towards the finance company has been one of cooperation and endeavoring to take care of it as soon as possible. In all cases the security was sufficient to permit the finance company to realize the full amount in case of foreclosure although it was not necessary or advisable to institute any foreclosure proceedings.

"It is difficult to determine the profit of the finance company as it is handled as an adjunct of our own bulk station business and the oil company receives the real advantages and profits on account of no credit sales being involved in finance notes.

"No change whatever has been made in the plan as originally prepared and contracts are being written today just as they were the first day it was put in operation.

"We are anticipating even greater results from the plan this year than we derived during 1929 and from the present outlook and judging from the number of contracts which are daily coming to the office from our field man it is very evident that we are not going to be disappointed.

"As a matter of fact the station which showed an increase of 275 per cent in 1929 over 1928 sold 50 per cent of his sales for the year 1929 during the first three months of 1930. All stations operating under the finance plan 100 per cent are showing much greater per cent increase in 1930 over 1929 than are the stations where we are operating on the three-way plan—cash, approved credit, and finance.

Cincinnati Tax on "Gas" Stations Killed by Appeals Court

CLEVELAND, June 3

A PERMANENT injunction restraining the city of Cincinnati from imposing an excise tax of $100 per year on service stations was granted by the Court of Appeals of the first Ohio district May 26. The injunction came as a result of appeals from lower courts by The Cincinnati Oil Works Co., The Refiners Oil Corp. and The Queen City Petroleum Products Co.

Decision of the court was that the state tax on Ohio corporations is an excise levy on the privilege of doing business. Since the state levies an assessment in this field the court held that a municipality may not enter the same field of taxation and thus create a double burden.

In perfecting their appeals the oil companies sought to prove that the state gasoline tax also was an excise tax. The court held, however, that the gasoline tax is imposed on the consumer for the privilege of traveling on the public highways and streets. The court also dismissed the plea of the oil companies that the tax was discriminatory and in violation of the Ohio and United States constitutions.

In arriving at its opinion that the corporation franchise tax is an excise tax, the court showed it is not collectable from a corporation which is in process of liquidation through bankruptcy. If a receiver for a company actually carries on the business, then it is collectable. Through this reasoning the court found that the tax actually is based on the privilege of doing business and that the city cannot exact a further assessment for the same privilege.

It is expected the case will be taken to the state supreme court by the city of Cincinnati. The oil companies are confident, however, that they will win a second victory there.

While the decision was made specifically on the question of the taxation of the stations of domestic corporations the court says in its opinion: "And the general code charges an excise tax upon foreign corporations for the privilege of carrying on intrastate business." From this statement it would appear that the city tax also would not apply to stations of foreign corporations.

Self Serve Stations to Attack Indiana Fire Order in Court

CLEVELAND, June 2.

SUIT will be filed in Indianapolis to prevent enforcement of the order of State Fire Marshal Alfred Hogston that would put an end to self service filling stations, Carl H. Weyl, Indianapolis attorney, informed NATIONAL PETROLEUM NEWS.

Mr. Weyl is attorney for the Hoosier Petroleum Co. of Indianapolis and the Peoples Nugas Self Serve, Inc., which operate self service stations in Indianapolis and Cambridge City, Ind., respectively. Both companies are controlled by Thomas B. Jenkins, an automobile spring manufacturer of Richmond, Ind.

Mr. Weyl said both stations were being operated June 2 on the self service basis although the fire marshal's abatement order was to have gone into effect June 1. No effort had been made to close the stations, he said, and no one had been arrested.

Mr. Weyl said the order was unreasonable and would be threshed out in the courts. It was unreasonable, he said, because it tended to add 5 or 6 cents a gallon to the price of gasoline, a commodity which he asserted was as essential today as bread.

"This is a question of very large moment to auto owners and I am sure you will recognize the importance of presenting both sides of the question," Mr. Jenkins wrote NATIONAL PETROLEUM NEWS. "The state fire marshal's publicity only presented one side.

"An automobile owner is allowed the privilege of filling his gas tank with gas in his barn, in his garage, in his yard, or any place whatsoever, except in a self service gas filling station. Apparatus for the prevention of fire is not usually available at places other than the self serve filling stations and consequently the fire hazard is greater.

"In the self service filling station fire extinguishers are made readily available and there is an attendant on the lot who is fully conversant with their use. The automatic valve hose nozzles used at these self serve filling stations are the latest designs and can be closed by the simple release of the pressure exerted by the operator's hand. Such is not the case in privately owned garages where in most instances the gas is poured through a funnel.

"It is hard to understand why owners are permitted to fill their tanks promiscuously and under any and all conditions of fire hazard at all points except at a self serve filling station."

Under the fire marshal's order only the owner of a service station or his employe would be allowed to handle gasoline at a public filling station. Mr. Hogston, when he issued his order May 20, said there was a public hazard in allowing any person to handle such a flammable liquid as gasoline in a public place.

The fire marshal has refused to rescind the order and has intimated that his inspectors shortly will begin to enforce it.

The Indianapolis and Cambridge City stations are the first two of 20 the Jenkins interests are reported to be contemplating to build in Indiana. They sell at cut prices. The Indianapolis station is now selling gasoline at 16.9 cents a gallon, compared with 20.2 cents at old line stations. The station opened early in May selling at 15.9 cents.

Two Oklahoma City Wells Cross Holes

By Telegraph

TULSA, June 3.—The Oklahoma City pool was extended one location east by the Mid-Texas Oil Co.'s No. 1 center north one-half SE NE SW 1-11-3W. On a five-acre tract in the town lot area on the north end of the field the well made 2420 barrels first three hours. In the same quarter section two wells drilling 73 feet apart crossed holes. These were the Jones Bros. No. 1 east half of east half of SW NW SW and Indian Territory Illuminating Oil Co. No. 1 SE NW SW. Both had reached a depth of 4664 when circulation was lost as the tools met it has not yet been decided who lost a hole.

Warren District Refiners Get Coal Rate Cut

WASHINGTON, May 26.—Refiners at Warren, Pa. and in that general region are to have a 19 cents per ton reduction in rates on the coal they buy in the Pittsburgh district, the cut being from $2.24 to $2.05 a net ton, effective on August 11. The reduction has been ordered by the Interstate Commerce Commission on complaint of the National Petroleum Association, with the borough of Warren backing the complaint as well as the Swan-Finch Refining Co., Tidioute Refining Co., Levi Smith Refining Co., and the Viking Oil Corp. Other refiners were complainants with the national association. Willis Crane, Harry S. Elkins and Fayette B. Dow, of the association's Washington office, represented the complainants.

The reduced rate will apply from mines in the Pittsburgh district over the Pittsburgh & Lake Erie, Bessemer & Lake Erie and the Buffalo, Rochester & Pittsburgh in connection with the Erie and New York Central via Falconer Junction, N. Y. not only to Warren but to Sheffield, Saybrook, Tiona, Tidioute, Pittsfield and other places in what might be called the Warren district.

Reduction to those towns over the routes mentioned and from the Pittsburgh mine district will force other routes to make cuts from other mining groups, thereby giving the refiners in the Warren district a broad market in which to buy their coal.

This reduction is the culmination of a fight northwestern Pennsylvania refiners have been making for rates on coal lower than those to Buffalo and points east of the Genessee river in New York. They have been fighting for about five years and nearly two years ago they got an adverse decision on the ground that Warren and the other refining towns had long been hooked up with Buffalo in a coal rate sense, although the haul to Buffalo is considerably longer.

Crude Stocks Reduced 2,454,000 Barrels

By Telegraph

WASHINGTON, D. C., June 3.—Stocks of crude oil in the United States were reduced 2,454,000 barrels in April according to the U. S. Bureau of Mines. East of the Rocky Mountains stocks were cut 132,000 barrels while in California the cut was 2,322,000 barrels. Crude production for the month was 77,175,000 barrels a reduction of 209,000 barrels under March.

Gasoline output from refineries was increased nearly a million barrels over March while stocks were cut 793,000 barrels to 54,435,000 barrels. Kerosene stocks were cut 387,000 barrels to 8,068,000 barrels.

Refiners reduced their output of paraffin wax 7,280,000 pounds but in spite of that fact added 10,388,000 pounds to storage bringing the total to 241,853,000 pounds. Lubricating oil stocks increased 88,000 barrels in the month.

Stocks of distillate fuel and gas oil increased 804,000 barrels in April while residual fuel stocks were reduced 152,000 barrels.

Automobile Engineers to Rate Knocking by Octane Number

By A. Ludlow Clayden

FRENCH LICK, Ind., May 29 THE big event of the meeting of the Society of Automotive Engineers here this week, from the viewpoint of the oil industry, was an agreement reached by the fuel subcommittee of the motor fuels research group to recommend detonation rating by "Octane Number." The octane number is defined as the number of parts of isooctane added to ten parts of normal heptane.

While official action by both the whole research committee and the S.A.E. will be necessary before this becomes authorized there is no doubt whatever as to its acceptance. The S.A.E. has been requested to approve and to have its standards committee issue this rating as recommended standard practice.

The adoption of this rating system sweeps away all the confusion arising from the use of benzol or ethyl fluid "equivalents," which are meaningless unless everything is known about the base gasoline to which they refer.

Of course it still remains to standardize test engines and the technique of detonation testing, but the committee has done enough co-operative work to show that a number of laboratories now check each other close enough on octane number to avoid any very serious disagreement. A supplementary part of the recommendation calls for the statement of octane number in whole numbers to try and avoid attempts to interpret it with too high a precision.

By this system all commercial gasolines, from the worst to the best, from the knock viewpoint should fall between octane numbers a little below ten up to a little under 30. It may be explained that the system of numbering suggested is better than stating the same thing in percentage because of the small difference between say 60 and 61 per cent octane and the comparatively large difference between number six and seven octane number.

Neither refiners nor engineers want a hair splitting rating. Laboratories that might check each other on the number of the new rating might fail to do so on percentage.

An adequate supply of heptane and isooctane seems assured and a probable considerable decrease in price ultimately although it is felt that accuracy of rating is far more important than cost. Any one laboratory would only have to evaluate its own standards in octane number terms occasionally and a few gallons a year of the pure fuels would meet all requirements.

Most of the papers read dealing with petroleum subjects were on vapor lock in different phases, excepting the report on the revised S.A.E. viscosity numbers already published in NATIONAL PETROLEUM NEWS* Mr. Bauer of the Standard of New Jersey, is an automobile research engineer of many years' experience, only for a few years past identified with the oil industry. His paper has as its outstanding conclusion that the easy starting qualities of gasolines are being restricted for the benefit of not more than 20 per cent of makes of cars; that if these cars were made as good as the other 80 per cent we could have more volatile motor fuels without danger.

Mr. Bridgeman and Miss Aldrich, of the Bureau of Standards, described experiments on weathering of aviation gasoline in a model airplane tank and on the design of airplane fuel lines to avoid lock formation.

So all three papers really bore stress on the mechanical side of the problem. The study of fuel lines proved that the gravity installations were most liable to provoke trouble if there was any enlargement of the line between tank and carburetor, while with vacuum feed just the reverse would be the case. The ability of gasoline pumps to raise gasoline was investigated, showing that, at any atmospheric pressure, there would be danger of lock as soon as the ten per cent point temperature for that pressure was approached.

The whole series of papers came near to final proof that volatility of gasoline need not be limited nearly so closely if fuel systems were designed in accord with proper principles. An exception is the case of fuel containing propane, which proved to be wild and to tend to lock at temperatures a good deal lower than those indicated by the ten per cent points or even by the vapor pressures measured directly, though the latter came nearer to indicating actual locking temperatures.

Mr. Bruce gave what will probably be the final report on the acceleration study of the research committee, this being mainly an examination of up and down draft arrangements and the conclusions that there was very little difference between the two. With the set up identical except for the placing of the carbureter above or below the manifold the results in acceleration were almost identical.

One thing is obvious and gratifying and this is that the engineering side of the membership does seem to be alive to the value of the work done by the research committee. The latter has been much criticized for its slowness but the work done has been so thorough that the conclusions are accepted.

*Page 31, May 28, 1930.

N.P.A. Technologists to Hear Papers on Fuels, Lubricants

WASHINGTON, May 31

SEVEN papers in a symposium on fuels and lubricants will be presented by Bureau of Standards technologists at the annual visit of the National Petroleum Association at the Bureau on June 6.

The program for June 7 will be informal. The visiting technologists may watch demonstrations of tests as they desire.

Each year technologists of member companies of the National Petroleum Association visit the Bureau of Standards. In a bulletin this week Fayette B. Dow, general counsel of the association, announced that 23 companies would have 36 representatives at the Bureau. Other companies were urged to send in names of representatives who would attend.

The formal visit on June 6 will begin at 10 a.m. in 105 West building. The following subjects will comprise the symposium. "The Work of the Bureau of Standards on Motor Fuels," by H. K. Cummings, chief, automotive power plants section. "Methods of Measuring Anti-Knock Value," by D. B. Brooks. "Gasoline Specifications," by O. C. Bridgeman. "Introduction to the Work on Lubricants," by M. D. Hersey, chief, friction and lubrication section. "Laboratory Testing of Oil Stability," by R. C. Hardy. "Engine Tests on Lubricating Oils," by C. W. Staples. "Mechanism of the Pour Points of Oils," by R. Buckley.

The speakers will include in their discussions a statement of researches in progress which can be visited in the laboratories. Synopses of the papers will be presented to the visiting technologists.

The Bureau will open its laboratories to the visiting technologists on June 7 for those desiring to watch the routine tests.

Each visitor may bring along a thermometer which will be checked by experts at the bureau.

Review of Late Production News

SIZABLE increases in production in Oklahoma, Arkansas and the Texas Panhandle boosted daily average crude output for the country 29,950 barrels, to 2,609,450 barrels, the week ended May 31, according to the American Petroleum Institute.

Crude oil imports dropped to 143,430 barrels, as compared with 164,430 barrels the previous week. Total new crude supply increased 8950 barrels, to 2,752,880 barrels.

Oklahoma production gained 20,550 barrels, the largest gain of the week. Oklahoma City and Little River each gained nearly 12,000 barrels. Seminole gained 5850 barrels, Bowlegs 6900.

California output fell 13,600 barrels, 5000 barrels of which occurred in Santa Fe Springs, 5300 barrels in Long Beach and 2000 barrels in Ventura Avenue.

Oklahoma-Kansas

INTEREST in the Mid-Continent centered in the Oklahoma City field during the past week. The completion of a big sand well at the city limits caused a number of first reports in the settled town lots. This well extended the pool nearly a mile to the northwest. Drastic efforts are being made by the city authorities to reduce the fire hazard. The new regulations are to be rigidly enforced.

The Asher-Wanette area of Pottawatomie county Okla., had two new wells, both of which were larger than the discovery of some weeks ago. This pool now has the appearance of being of more than fair size. The correlation of pay sand however, is still a question among geologists.

In Kansas the Voshell pool of McPherson county, was extended one quarter mile to the north. The rest of the state was unusually quite.

California

THOUGH California passed through another dull week there was some interest evidenced in developments at Playa del Rey and in the rapid decline of production from Santa Fe Springs.

Committee meetings held throughout the state, showed a majority of the Pacific Coast operators were behind conservation movements. In cases where additional persuasion was needed, the committees sent out letters stressing the unfortunate result following refusal of some Santa Fe Springs operators to join the new proration move.

The Kettleman Hills Committee is reported to have petitioned the Department of the Interior to allow Continental Oil Co. to drill at least two offsets to producing wells on Sec. 35 of the north dome. If permission is granted, work will commence immediately on offsets to Petroleum Securities' Felix No. 1 and Standard Oil Co.'s No. 38, both on Sec. 35.

Current production in this country by pools is found on page 113.

Enforcement of California's gas conservation law received further setbacks during the week when Superior Judge Crawford, hearing the Signal Hills case, stated several times during the proceedings that the state had not established, as yet, just what "unreasonable waste" of gas was. It was brought out during the hearing that the price of natural gas to the industrial consumer was based on the price of fuel oil and that if the supply of fuel oil were curtailed so as to bring about an increase in price it might be expected that gas rates would be raised.

Wyoming, Montana

SEVERAL new wildcat wells are starting up in the Montana territory south of the international line, the discoveries recently made at Bear's Den and before that in Red Coulee having given much impetus to drilling the several local "highs" in the Sweetgrass Hills territory.

Deep test 12 miles north of Casper on the Midway dome wildcat structure, being drilled by Midwest Refining Co. is below 2050 feet a week after having been turned over to a crack rotary crew from Oklahoma. This well may be drilled to 8800 feet in the attempt to make a thorough test of this structure.

The Salt Creek deep test is drilling in the top of Madison limestone, and has 65 barrels of water per day. This formation is not expected to be productive at much less than 200 feet in the lime.

Atlantic Keystone Petroleum Corp., Ltd., of Canada has taken over the Bolton Creek Oil Co.'s pipeline from the Bolton Creek, central Wyoming, to Casper, and will develop the Spindletop field and pipe the crude to railhead at that city. Continental Oil Co. will drill a deep test in the Big Muddy field and one in the Elk Basin field.

In Colorado the Mountain Fuel Supply (Ohio Oil Co.) has started operations at its wildcat well on Powder Wash structure, 20 miles east of Hiawatha dome; The Texas Production Co. has indications of a big gas well on West Hiawatha dome; Texas also has a gas showing at its deep wildcat on White River dome, in Rio Blanco county, at 5978 feet.

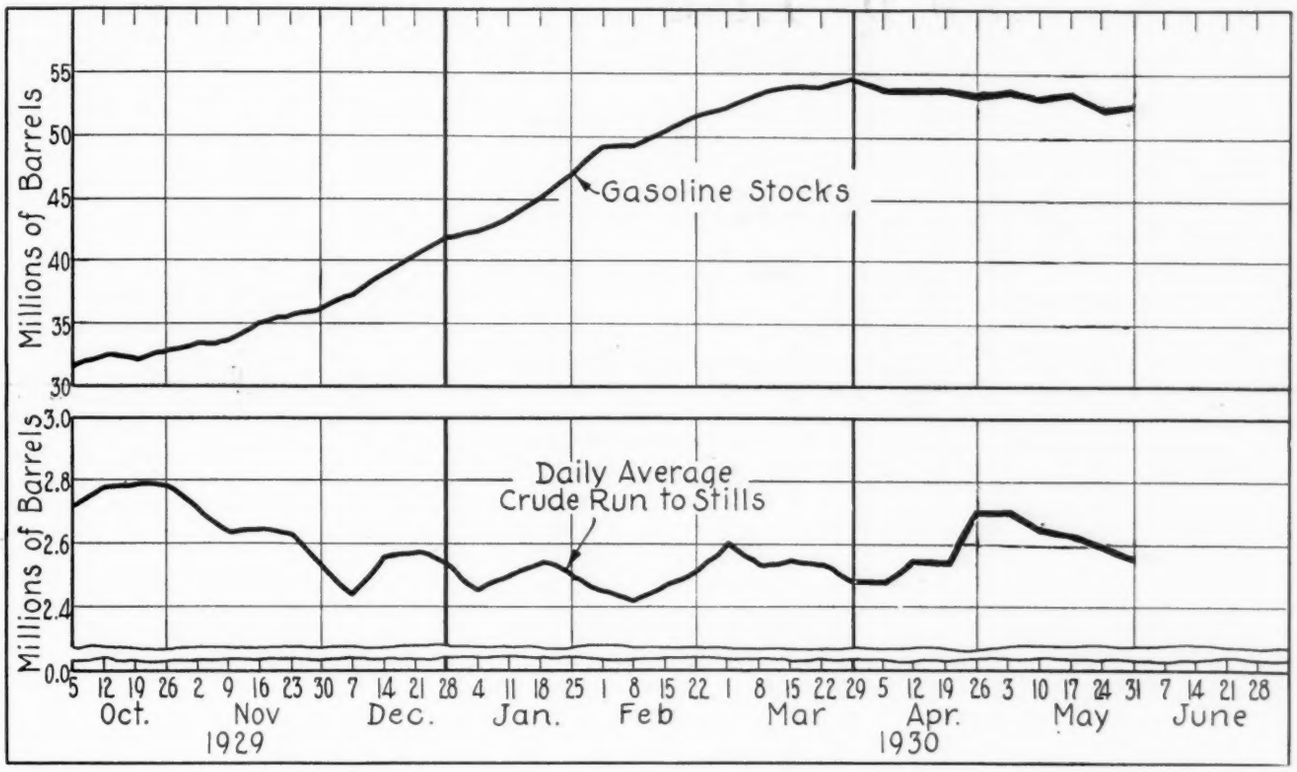
Texas, New Mexico, Louisiana

PIPELINE runs of 18,500 barrels daily through the outlet systems of the Texas and the Humble Companies are now being made from Lea county, New Mexico, which is growing in Permian salt basin importance. Atlantic Pipe Line Co.'s 8-inch feeder from Hobbs, N. M., to Midland, Texas, will not be ready to operate until July 10, it is now announced. The oil has a common outlet with that produced in the sulfur crude fields of West Texas. Total trunk line runs for the salt basin region of the two states now approximates 305,000 barrels daily. Total capacity of trunk pipelines serving the salt basin amounts to 430,000 barrels.

Tank car shipments of approximately 23,000 barrels daily, plus consumption by West Texas refineries amounting to 42,000 barrels, bring salt basin crude distribution to approximately 370,000 barrels daily. With total production of roundly 325,000 barrels daily in the salt basin region of the two states it is apparent that about 45,000 barrels of crude daily is coming from storage.

Conditions remain quiet in North Louisiana, where weather and floods have hampered development. Elsewhere in the three states operations were of local importance only.

U. S. Crude Runs and Gasoline Stocks as Reported Weekly by A. P. I.



Refiners Cut Crude Runs as Gasoline Lags

Staff Special—By Telegraph

NEW YORK, June 3

STOCKS of gasoline at U. S. refineries increased 124,000 barrels in the week ended May 31, according to reports gathered by the American Petroleum Institute from plants with 95.8 per cent of the nation's still capacity. Total gasoline stocks May 31 at reporting plants were 52,606,000 barrels.

On May 3 the Institute report covered 95.6 per cent of the total capacity of the country and showed total gasoline stocks of 53,826,000 barrels. There has been apparently a reduction of only about 1,220,000 barrels in gasoline stocks at refineries in the month, in spite of the fact that refiners have shown a tendency to lower their crude runs from the high level reached in the last week of April.

In the week just closed refiners reduced their crude runs 21,100 barrels daily average to 2,566,300 barrels per day. They were using 72.8 per cent of capacity as compared with 73.5 per cent in the previous week.

Largest reductions in crude runs were made by Gulf Coastal Texas and Appalachian refiners. The South Texas group cut runs 17,700 barrels and the Appalachian group 12,600 barrels daily average. East Coast refiners increased their crude runs 9300 barrels daily average.

Fuel and gas oil stocks increased 415,000 barrels during the week to 137,978,000 barrels.

Current Refinery Operations

Districts	Per Cent Capacity Reporting	Daily Average Crude to Stills (Barrels) Week Ended May 31	Daily Average Crude to Stills (Barrels) Week Ended May 24	Per Cent of Reporting Capacity Operated Week Ended May 31	Per Cent of Reporting Capacity Operated Week Ended May 24	Stocks (Thousands of Barrels) Gasoline May 31	Stocks (Thousands of Barrels) Gasoline May 24	Stocks (Thousands of Barrels) Gas & Fuel Oil May 31	Stocks (Thousands of Barrels) Gas & Fuel Oil May 24
East Coast	100.0	480,600	471,300	79.3	77.8	9,039	9,033	7,729	7,348
Appalachian	91.0	85,100	97,700	73.0	83.8	1,807	1,828	835	776
Ind., Ill., Ky.	99.6	326,700	326,800	85.7	86.9	8,355	8,391	3,896	3,671
Okla., Kans., Mo.	89.8	310,600	317,300	74.8	76.4	4,861	4,753	4,442	4,222
Texas	90.8	572,400	592,600	80.0	82.8	7,423	7,270	10,340	10,547
La., Ark.	96.8	174,600	173,300	66.6	66.1	2,495	2,577	1,835	1,885
Rocky Mountain	93.6	62,700	59,100	45.0	42.4	2,787	2,812	1,127	1,128
California	99.3	553,600	549,300	62.1	61.6	15,839	15,818	107,774	107,986
Total	95.8	2,566,300	2,587,400	72.8	73.5	52,606	52,482	137,978	137,563
Texas (Gulf Coast)	100.0	422,300	440,000	80.2	83.6	6,205	6,105	7,458	7,755
La. (Gulf Coast)	100.0	119,900	124,300	81.3	84.3	2,087	2,182	989	1,009

Standard of Indiana Completes Deal for Purchase of McMan

TULSA, May 31

CONCLUSION of the negotiations for purchase of the McMan Oil & Gas Co. was announced May 28 by the McMan and the Standard Oil Co. of Indiana, the purchaser. All officers of the McMan resigned and were replaced by executives of the Dixie Oil Co., a wholly owned subsidiary of the Indiana company. For the present the two companies, whose general offices are in Tulsa, will maintain separate organizations in different buildings.

The transaction is in the nature of a stock exchange, the details of which have not been revealed. One source of information says the value of Indiana stock given is near the fifteen million dollar mark. McMan's properties are in Oklahoma, Kansas and Texas with the greater part of its production in the Panhandle and in West Texas. It is accredited with a potential of 14,000 barrels daily. Three gasoline plants, with combined capacity of 26,000 gallons daily, are included. They are at Burkburnett, Desdemona and in the Tonkawa field.

Frank O. Prior, president of the Dixie Oil Co., is the new president of the McMan. H. G. Schneider, Dixie vice-president occupies a similar position in McMan and A. M. McCorkle, also a vice-president of Dixie, was elected secretary-treasurer of Dixie with W. J. Dykeman, Jr., assistant secretary and treasurer.

The McMan officers who resigned were J. A. Chapman, president; R. M. McFarlin, Harry H. Rogers, H. G. Barnard, E. B. McFarlin and John Rogers, vice-presidents and W. G. Guiss, secretary-treasurer. They constituted the board of directors. Messrs. Chapman and R. M. McFarlin, from whose names Mc(Farlin) and (Chap) man the company name was originally formed, were credited with owning between them two-thirds of the company stock. Harry H. Rogers is president of the Exchange National Bank of Tulsa. E. B. McFarlin, nephew of R. M., was general manager of the company and John Rogers, brother of Harry H., was the counsel.

Stock in the company has always been held by this group. This is the second big sale they have made since they formed the McMan. In 1918 the Magnolia Petroleum Co. bought the company for $39,000,000. The properties were merged into those of the Magnolia and presently the same group organized the new McMan and started to build another company. It is considered likely that they will reenter the oil business before long.

New Jersey Standard Sells Tide Water Holdings

NEW YORK, June 3.—Axtell J. Byles, president of the Tide Water Associated Oil Co., announced today that some of its executives had formed a corporation which has purchased all the holdings of the Standard Oil Co. (New Jersey) in the Tide Water Associated Oil Co.

This purchase represents approximately 20 per cent of the Tide Water Associated common stock and represents an interest secured by the New Jersey Standard shortly after the old Tide Water was organized.

Mr. Byles stated that the relationship between the New Jersey Standard and the Tide Water Associated continues a very cordial one, but it was felt in the interests of each company that the stock transfer be effected.

Tide Water Associated has outstanding about 5,560,000 shares of common stock which, at present market prices, would amount to between $19,000,000 and $20,000,000.

Soviets Renewing Efforts For Foreign Oil Trade

By Cable

LONDON, June 2.—In planning further activity in the export markets, particularly in the far east, the Russian soviet government has entered into new contracts with the Vacuum Oil Co., Standard Oil Co. of New York, and the Anglo-American Oil Co.

This announcement was made to a NATIONAL PETROLEUM NEWS representative here by Gregory Lomov, the new chairman of the Russian oil trust, and a member of the soviet supreme economic council, who is now on foreign trip in which America will be visited this summer.

With Lomov are Vice Chairman Ribovol of the Russian oil trust and B. G. Zukerman. All the soviet oil organizations are now centralized, it is announced, by the creation of the Soyuzneft, with Lomov at the head.

Lomov stated that a significant increase in production of the Sakhalin oil fields had led the soviet to plan to export greater quantities of oil to the far eastern markets.

"The Grozny subsidiary has started exploitation of the new Maikop field in Russia, which promises an output equal to that of the entire Grozny field before the war," stated Lomov. "Maikop oils give 35 per cent gasoline. This new field ensures the practicability of the plan to produce over 40,000,000 tons in the next two years.

"Extensive enlargement of cracking facilities in Russia has been undertaken and lubricating oil production is being reorganized."

It was stated that British, German, French and Italian subsidiaries of the soviet are all capable of increasing sales.

Lomov stated there were no grounds for the rumor that the working out of the soviet's plans for the development of automotive transport in Russia would restrict the quantity of petroleum available for export from Russia. He also stated the Russians have no immediate plan for entering the American oil markets.

Ask One Year Delay On Grease Meters

WASHINGTON, May 25.—Weights and measures questions pertaining to the dispensing of gasoline and greases will be discussed at the twenty-third annual conference of weights and measures officers at the Bureau of Standards June 3-6.

The American Petroleum Institute will ask the conference to delay for one year a proposed ruling that grease dispensing equipment be calibrated for measurement of deliveries. The institute will show that such devices are not available in sufficient quantities to supply the market as yet.

Paul E. Hadlick of the Institute, will speak on grease-measuring devices and notes on the same subject, based on a recent survey, will be presented by Ralph W. Smith of the Bureau of Standards. Air releases on power-operated dispensing units for gasoline will be discussed, A. W. Schwartz, assistant state superintendent of weights and measures of New Jersey.

There will be an exhibition of the liquid-measuring device of the type now being used, to a considerable extent to meter gasoline. Seven manufacturers of such meters will exhibit their products while the conference is in session. They will disassemble their devices, explain how they operate and describe the use of any adjustable devices with which they are equipped.

Federal Board Hails Long Distance Gas Lines as Great Achievement

RECENT developments in long distance transportation of natural gas constitutes one of the most noteworthy achievements in modern economic history," the Federal Oil Conservation Board observes in its fourth report to the President. The report outlines methods which have been used in the construction and operation of new major gas lines and gives a list of the projects.

In 1928 distribution of natural gas exceeded 1,568,000,000,000 cubic feet, an increase of 8 per cent over 1927. Of this 36 per cent was used in the oil field at 7.3 per cent at refineries leaving only 56 per cent for sale outside the oil industry.

In 1929 gas distribution increased 15 per cent to 1,800,000,000,000 cubic feet. Public utilities increased their gas consumption in the production of electricity 46 per cent to 112,847,000,000 cubic feet in 1929. Public utility gas companies increased their purchases of gas 49.7 per cent in 1929.

There has been a rapid increase in the number of communities where natural gas is available. In Oklahoma last year 31 new towns were supplied. In Texas the number of communities served increased from 82 at the beginning of 1927 to 490 at the end of 1929. New major systems have added a substantial number of communities in states outside the oil country.

The board gives the following resume of the growth of major long distance gas lines in its report:

"Prior to 1927, transportation of natural gas over a distance of 250 miles was regarded as an outstanding engineering accomplishment. In July, 1927, a line, 20 inches in diameter, was started at Pampa, Gray County, Texas, to connect the gas fields of the Texas Panhandle with Kansas City, Missouri. The whole system, when completed in September, 1928, was 382 miles in length and was estimated to be capable of handling a maximum peak-load delivery of 250 million cubic feet daily.

"In December, 1927, another long natural-gas transmission line was started. This line, 22 inches in diameter, was laid from the Amarillo field, in the Texas Panhandle, to Denver, Colorado, a distance of 340 miles, and was referred to as one of the greatest enterprises undertaken in the gas industry. During 1929, this system was extended eastward from Pueblo to several towns within a distance of approximately 50 miles, and plans are reported under consideration to extend it to other communities nearer the Kansas line.

"The completion of these lines was followed closely by other developments. Some major pipeline projects recently completed are:

"1. Memphis has been supplied with natural gas from Louisiana since December 28, 1928.

"2. New Orleans is served with natural gas through an extension of the pipeline which formerly terminated at Baton Rouge.

"3. The St. Louis industrial district is supplied with natural gas through a 450-mile pipeline from Louisiana.

"4. A 420-mile pipeline has been built across Mississippi, Alabama, and Georgia to deliver natural gas from Louisiana to Birmingham, Alabama, Atlanta, Georgia, and other communities in these States.

"5. A 250-mile pipeline has been laid to San Francisco from the Buttonwillow and Kettleman Hills areas in Southern California, and is being paralleled by a second line.

"6. Salt Lake City and Ogden, Utah, are served with natural gas from Baxter Basin, Hiawatha, and Clay Basin fields in Colorado, Wyoming, and Utah.

"7. Monterey, Mexico, is served with natural gas from the Jennings field, Texas, through a pipeline crossing the International Border at Roma, Texas.

"8. Approximately 200 miles of pipeline carry natural gas from the Jal area, Lea County, New Mexico, to El Paso, Texas.

"Projects under recent consideration, tending to extend areas served with natural gas although actual construction has not been started, include a 950-mile pipeline from the Amarillo field, in Texas, to Chicago; the extension of the present pipeline to San Francisco northwards to Oregon and Washington; the extension of the pipeline system in the Rocky Mountain district to include Butte, Anaconda, and other communities; the conversion of oil pipelines to the transport of natural gas; and the construction of necessary additions to serve mixed gas to certain cities along the Atlantic seaboard.

"Reviewing this list of natural-gas lines and anticipating the building of still longer lines, the question naturally arises as to what new conditions have made possible the building of natural-gas distributing systems extending farther and farther from the gas fields.

"The subject is one in which both engineering and economic factors are involved. Every natural-gas distribution project requires the detailed consideration of at least three major factors, namely:

"1. Assured supplies of gas for long-time periods.

"2. Assured markets.

"3. Cost of construction and operation."

Regarding the first two points the board observes that new gas fields have given an assured supply while surveys of distant markets have shown that lines would be profitable even though construction costs had not been lowered. On the subject of engineering advances the board reports as follows:

"The principal item of cost in a pipeline project is the cost of the pipe itself. The cost of the pipe varies directly as the weight, which in turn varies directly as the diameter multi-

Natural Gas Projects Announced in Texas

HOUSTON, May 31.—Two natural gas projects affecting Texas production were announced at the end of the week, one contemplating definite construction of considerable magnitude in Gulf Coastal territory and the other indicating important industrial distribution into the Arizona region.

President E. H. Buckner of the Houston Pipe Line Co., Inc., gas subsidiary of the Houston Oil Co. of Texas, announced the forthcoming construction of a 26½-mile auxiliary line from Refugio in a northeasterly direction to a point near Fannin, Goliad county, where it will tie in to the present 18-inch main line system of the company and the 12-inch auxiliary loop that was built through the district last year.

An Associated Press dispatch from Tucson, May 30, quoted the Arizona Star as saying contract had been signed two weeks ago in New York by Louis C. Cates, newly elected president of the Phelps Dodge Corp., and Paul Kayser, president of the Western Gas Co., for pipeage of natural gas from Texas and Oklahoma into Arizona mining districts.

The dispatch said the contract calls for three billion cubic feet of gas at 18 cents a thousand cubic feet; 17 cents for quantities exceeding that specification.

plied by the thickness. With increasing diameter, the thickness of the pipe must be increased proportionately to withstand the same pressure.

"Because an increase in the diameter of pipe increases the capacity more rapidly than the corresponding increase in cost, the general tendency has been to use pipe of sufficiently large diameter to deliver the capacity required at pressure up to 350 or 400 pounds per square inch. However, the possible economy which may be effected in gas transportation through lines of smaller diameters and greater wall thickness under pressures as high as 1500 pounds per square inch is being considered at the present time. It has been suggested that while the costs per lineal foot of line may be more for this type of construction, the cost per cubic foot of natural gas delivered may be less.

"Several gas companies have reduced the cost of their pipeline construction materially by using so-called telescope lines. These lines are made up of sections of pipe of different diameters, the diameter increasing in the direction of flow, as the pressure decreases. For example, where a 16-inch line is required, its equivalent may be built with 14, 16, and 18-inch pipe; or a line of uniform diameter may be built with the weight of pipe decreasing in the direction of flow so that pipe with thinner walls is used where the pressures are lower.

"Telescopic design of pipelines has the effect of reducing the total weight of the pipe and consequently the cost. Telescopic lines should be especially economical where high initial pressures exist and where there are long distances between compressor stations. The efficiency of flow through telescopic lines is being studied by Federal and industrial agencies to determine the advantage in amount of gas handled in these lines as compared with lines of constant diameter.

"The increasing use of better welding methods is changing the type of pipeline construction and effecting economies. In the manufacture of pipe, automatically controlled process welding by the electric arc method has made it possible to fulfill some of the requirements of high pressure pipe design. Extensive use of oxy-acetylene welding in the field has marked the passing of large, heavy, cast-iron fittings. The all-welded and forged-steels flanged manifold is a good example of the improvement that has come about through the use of welding in place of cast-iron fittings.

"Further economies in pipeline construction have resulted from the use of longer lengths of pipe for main trunk-line work. With the generally accepted use of welding on trunk lines, the demand for 40-foot lengths of plain-end pipe has increased. Forty-foot lengths effect a considerable saving in construction costs, and the trend is definitely toward the use of 40-foot lengths, or possibly longer, for welded trunk lines.

"Only recent electric arc welding has come into use for the welding of pipelines in the field. Advocates of the electric arc method believe that it will reduce construction costs and have other advantages. Progress is being made in the development of automatic welding processes for field service. When perfected, these methods will tend to reduce the cost and increase the rate of construction.

"Machinery has largely replaced the older hand methods of pipeline construction. Costs have been lowered by laying, hauling, hoisting, and handling pipe with machines and tractors especially designed for this work.

"Corrosion is an important factor in determining the cost of a pipeline. The amount of expenditure warranted for protective pipe coatings depends upon the nature of the soil in which the pipe is to be laid and the relative corrosive effects of the soil. The economic value of good pipe coatings has become more and more appreciated during the past few years. Many operators are using costly pipe coatings, and experience has proved that such protections are economically justified. Frequently the life of a pipeline in the ground may be prolonged 50 per cent by the application of proper pipe coatings.

"Until a few years ago little or no attention was given to the economy possible with a gas-tight transmission system. Now pipelines are given careful leakage tests. Also, provision is made for the removal of condensates, sands, and other foreign material which would decrease the capacity of lines and thus increase the compression costs."

Drawing a conservation moral from the gas development the Federal board points out that now the oil industry should be more anxious to conserve gas from producing fields as well as dry gas when it finds that gas will yield a large share of its revenue.

The California Gas Administrator is quoted in the report that gas wastage in that state in the latter part of 1929 was nearly one billion cubic feet per day, or more than the amount consumed in the state.

"If from July to October wastage exceeded utilization, it follows," the board said, "that at some time in the future users will be without gas four months sooner, at the present rate of consumption, than if this supply had not gone to waste."

Gas Line Begun from Panhandle To Indiana and Kentucky

CLEVELAND

MISSOURI-KANSAS Pipe Line Co. has begun work on a 1250-mile natural gas line from the Texas Panhandle to Indianapolis and a point near Evansville, Ind. At the latter point connection will be made with the company's Kentucky pipe line system. The line is to be completed by Dec. 1

The line from the Panhandle will pass through Kansas City; Springfield, Ill., and Terre Haute, Ind.

Frank O. Parish, president of the Missouri-Kansas Pipe line Co., said his company's subsidiary, the Panhandle Eastern Co., had contracted to sell gas to the Illinois Power & Light Corp. and the Missouri Power & Light Co. These two subsidiaries of the north American Light & Power Co. will distribute the gas in cities in Illinois and Missouri which they now are serving with manufactured gas.

The new line is said to be the largest natural gas system in the United States and will deliver Texas natural gas to points in Kansas, Missouri, Illinois, Indiana, and Kentucky.

Financing of the line has already been completed, Mr. Parish announced. Construction has begun in Texas and Missouri and additional gangs are being put to work. An order for $25,000,000 of pipe has been placed with the National Supply Co., he said.

Southern Natural Gas Corp., which has a natural gas line from the Monroe and Richland gas fields of northern Louisiana to Atlanta Ga., this week marketed $11,500,000 of 6 per cent convertible debentures, due in 1944. Price was 97 to yield 6.33 per cent. Proceeds are to be used for extension, it was announced.

Midland Natural Gas Co. which owns and operates natural gas properties in Pennsylvania and West Virginia recently sold 115,000 participating class A stock at $17.50 a share, proceeds totaling $2,015,500. This stock is without par value. It carries a $1.20 a year cumulative dividend. At $17.50 a share the stock yields 6.85 per cent.

Duquesne Gas Co. which operates in the vicinity of Pittsburgh recently sold 300,000 shares of no par common stock at $15.50 a share. The sale was private and did not represent new financing.

Chicago capitalists have organized the Chicago Gulf Corp. to take over natural gas and oil properties of the Jackson County Oil Syndicate in Jackson county, Texas, according to Chicago dispatches. John Taylor Wilson of E. H. Rollins & Sons, brokers and investment bankers, heads the Chicago group. It was announced the new company had contracted to sell its gas production to the Houston Gulf Gas Co.

Court Ruling on Community Interest In Oil Pools Urged by Board

OF THE various cooperative methods that have been discussed and have been tried out, the Unit-Operation plan seems by common consent to have commended itself more than any other.

Mere mention of united action or cooperative effort suggests to many the idea of monopolistic control. An engineering plan to lower production costs is thought to be the first move in a conspiracy to raise market prices. An effort to reduce waste and conserve supply is interpreted as a scheme to corner the market.

The natural unit in oil deposits is the single pool, large or small, and unit operation is in essence nothing more or less than accepting nature's decree and seeking to work in harmony with it. Unit operation is purely an engineering matter and a local matter, because commonly an oil pool is a relatively small production unit in the country's oil business. Thus, local cooperation in the orderly exploitation of an oil pool is not even a step toward a country-wide merger for the purpose of monopoly. There need be no fear that this observance of natural and economic law involves any violation of statutory law.

The Federal Oil Conservation Board in its first report discussed at some length the question of the legality of cooperative agreements, and said: "The voluntary cooperation proposed would need to include the landowners and operators in a single field or pool, which is a relatively small unit of production, so that the possibility of monopolistic control need not be feared."

Overproduction a Public Menace

As a matter of fact, the same report shows that community action in the handling of what is by right the common property in an oil pool is not different in effect from the operation of a field under single ownership where an economical drilling program is adopted with the definite purpose of high recovery at low cost and at a rate adjusted to market demand.

Overproduction of any commodity is uneconomic, and if it involves depletion of a supply that can not be replaced, overproduction and the consequent wastefulness effect a permanent injury. Especially is overproduction in the oil business a public menace, by reason of the unnatural and unfair competition between co-owners within the same natural unit. It is this individualistic strife, characterized by haste and waste, that has been a large factor in inciting overproduction in the past.

The change from the delirium of competitive operation of a pool to the sanity of cooperation need not involve any danger that underproduction will be substituted for excess production; going to that improbable extreme can be avoided by the exercise of the policy power of the state, as long as there are in the ground reserves of oil large enough to meet an increasing demand. The inevitable day of deficit in supply, with attendant high prices, will be postponed by simply stopping the present type of unnatural warfare, politely termed competition, between neighbors in the same pool.

Competition Between Pools Not Precluded

The cooperation implied in the unit-operation plan thus makes for more rational production than the present uneconomic drilling and pumping, but this cooperation within the pool does not preclude competition between pools or fields. The community of interest and action involved in unit operation stops at the natural boundary of the oil pool.

The country-wide influence of such local cooperation upon either supply or price is not one to be overlooked. Even if the idea of consulting economic conditions and co-ordinating the development and operation of a single pool to the market needs for oil and gas should spread, such economic sanity would not involve public injury or any impairment of public control. Combinations between local units would still be just as actionable as combinations between major companies are now, if the purpose should be to restrain production below market needs. Unit operation is not of itself monopolistic control, or even a step in that direction.

The unit idea in producing oil is bound to win out, because the natural unit is the oil pool. Man may draw property lines on the surface, making a checkerboard for title-searchers and lease-lawyers to play on, but nature has fixed a boundary line around the underground deposit for geologists to discover and engineers to use in the development of the hidden resource. The unit-operation plan is a "back to nature" movement. Codes of laws and judicial decisions relating to oil deposits have accorded to the surface checkerboard a sanctity quite beyond its desserts, while the facts of nature as now known have received little attention and have commanded less respect.

Fences, walls, and other land-lines serve effectively as property boundaries where the property is fixed in character and position, whether it is valuable as tillable soil or as a structural foundation. These same lines may be extended downward as vertical planes and serve no less acceptably to define property rights in the ores we mine. The essential part of the property-line idea is our faith in the continuing relation of the line to the fixed property. It serves best of all when by triangulation we tie our private land corners to the geodetic constants; then the hand of man can not erase beyond recovery the boundaries of our estate.

Quite different, however, is the relation of any land lines to property rights in the winds that blow and the waters that flow across these man-marked boundaries. The mobile and fugitive nature of air and water makes our rights to their possession and use related to the rights of our neighbors, so that some co-ordination is required, lest the use by one interfere with that by others.

Oil Jurisprudence Seems Strange

All this is recognized in the common law and is so obvious that it seems strange that a different mode of thought and jurisprudence has prevailed regarding the oil and gas beneath the surface. These substances, like air and water when unconfined, are mobile and fugitive. The legal pronouncement as to oil and gas that possession is ten points of the law puts such property into a unique category. This class of property plainly should be dealt with differently from coal and ore.

The geologic facts and natural laws bearing on the conditions of occurrence of oil and gas in their original habitat that we have learned as the years have passed, render wholly unnecessary their relegation to the "wild animal" class. Whatever the eventful story of its origin and accumulation, the oil as we find it in the oil pools of today is not now fugitive except where it has been disturbed by acts of man.

In the undrilled area, the oil under a 40-acre tract is the same oil that was there when the land was sur-

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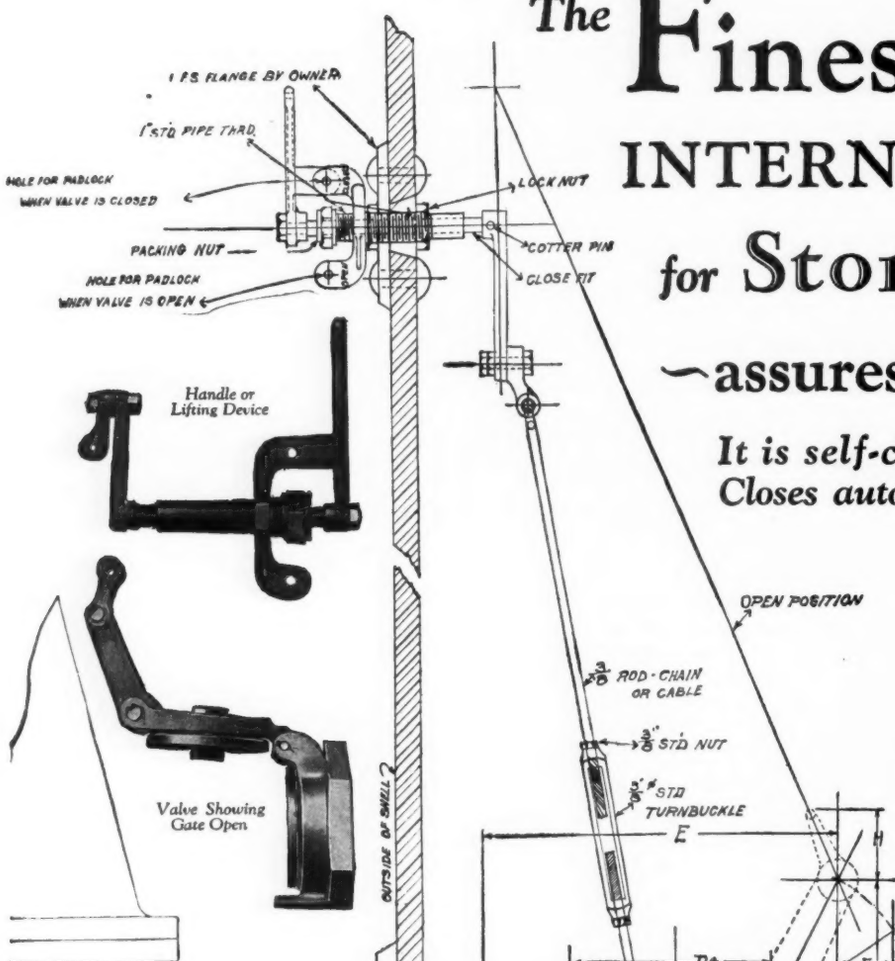

One of the many methods of installing the Wheaton Internal Valve. Another popular method of installation is to run a cable through the top of the tank and over a pulley to an anchor on the drain pipe. By inserting a fusible link in the cable near the outside end, the valve automatically closes in case of fire.

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veyed, and indeed when Columbus discovered this continent; long before that historic event the boundaries of undiscovered oil pools were fixed by nature and will change little if any as the centuries pass.

Thus, at the moment when the first drill penetrates the oil sand, the amount of oil underlying the holdings of the different landowners within the natural boundary of a pool is fixed and definite, although not then known. The equity of each individual landowner would seem to be no less fixed and definite—a reality related to and varying with area and position of his land, thickness and porosity of oil sand, pressure of the gas associated with the oil, and similar physical facts—undetermined in large part but still determinable.

Pool Is Natural Unit of Ownership

Up to this stage, the oil is a definite and fixed property, and, so far as man-made rights control, that property goes with the surface holdings the possession of which is so carefully protected by the laws of the land. Participation in ownership of the oil should be limited by the natural boundary of the pool—a property line which is not commonly visible on the surface, even to a geologist, but which with other geological facts can be and usually is determined in the course of exploration of the pool. The pool is the natural unit of property ownership in oil.

Within this natural unit, once a beginning is made in bringing the oil to the surface and thus giving value to the underground resource, the oil beneath the surface becomes movable property and the only boundaries to be considered are the exterior limits of the pool. Thereupon the division of the oil property between surface owners is no longer fixed—hence the "ferae naturae" figure of speech of the lawyers. But anyone who sees the oil pool as a natural unit with divided ownership might reasonably ask: Why not adopt a procedure that will preserve rather than destroy pre-existing property rights? Why sanction practices and formulate rules that lead directly to a contest for possession among the owners, each trying to get more than his share of the whole property? By reason of its loss of fixed character, why should not the oil be regarded as taking on the nature of common property? At least this would be substituting equity for war, business in the open for underground robbery.

The violence that the existing procedure, though legally sanctioned, does to the principles of logic and equity is realized when we contrast the rules of the game above ground and below ground. In an oil field the owner of a gusher well, whose good fortune may have caught him unawares without storage tanks, is legally liable for even temporary damages to the surface property of his neighbors if his oil happens to flow over their land, but when has an injunction been granted against the owner of a town-lot well the flow of which must by the nature of things be doing permanent damage to the underground property of his neighbors? Apparently this appropriation of another's property is countenanced simply because it is under cover of the darkness of the depths and has been quite beyond the vision of those who have made our laws and dealt out justice.

Of more recent date than the general understanding of this underground movement of oil after drilling has started is the tardy realization of the function that gas plays in winning oil for the use of man. The natural gas associated with the oil in the pool largely determines its mobility and controls its movement to the well and to the surface. Deplete this gas supply and reduce the pressure, and the recovery of some part of the oil content of the pool becomes more difficult or even impossible, and to that extent the other owners are deprived of what is rightfully theirs.

The Saratoga gas case seems to have established this principle for carbon dioxide and water, and might logically be extended to natural gas and oil. As quoted by Mr. Hughes, the present Chief Justice, when speaking before the Federal Oil Conservation Board in 1926, the United States Supreme Court upheld the state statute cited in this case, "forbidding a landowner engaged in collecting and vending as a separate commodity the carbonic acid gas contained in natural mineral waters existing in a common underground reservoir from pumping or otherwise artificially drawing, by means of wells on his property, unnatural quantities of such waters from the common source of supply and wasting them to the injury or impairment of the rights of other proprietors."

Waste By One Owner Injures Others

The waste of natural gas by any one landowner surely brings about impairment of the common right of adjoining owners to reduce to possession their respective shares of oil and gas in the same pool through wells drilled on their lands, and this common right as stated by the Federal Oil Conservation Board, "should involve some recognition of correlated obligations, so that in the drawing of oil and gas by one owner from the common reservoir the producer should be required to recognize the right of the neighbor to so much of the oil as is withdrawn from underneath his property, less a reasonable allowance for the cost of production, the hazard of the undertaking, and a reasonable profit on the undertaking."

What is needed now to effect this conservation movement is specific recognition by the courts of this community of interest by all the landowners in the content of the oil and gas pool, in the oil and the gas as separate marketable commodities and in the energy in the gas—the pressure so easily dissipated but so essential to an adequate recovery of the oil included in the minute pores of the sand or sandstone that forms the reservoir.

It is this loss of pressure, which profits no one and damages all, that takes on the character of a legal nuisance, against which owners in the common reservoir should be protected. Impairment or loss of the natural agency that controls the "reduction to possession" of the oil beneath the surface proprietor's land is in effect taking his property.

Forty years ago when Pennsylvania court decision was rendered the oil business was only a thirtieth of its present size; today, with a better understanding of geologic conditions, unit operation of an oil pool would seem to be simply following nature's lead. Its economic purpose is to prevent injury to any of the landowners who have similar property rights and to prevent the waste of valuable commodities in which the public as a whole has an interest.

Engineers Endorse Efficiency Of Unit Operation

The efficiency of this method of treating an oil pool as a unit is now generally endorsed by the production engineers who have studied the physics of the oil and gas in their underground association. The method meets the real test of efficiency by lowering costs of development and operation and increasing the percentage of recovery of oil. The difficulty in putting the plan into effect lies in the large advantage that a single owner of a small surface holding may now seize for himself under the rules of the game as at present supported by well-aged judicial opinion.

Repeatedly, proposals for agreements between property owners to promote the efficient and economical handling of their common property, in protection of their mutual rights, have been vetoed by a small minority of the parties in interest. For these reasons, the Federal Oil Conservation Board early urged "the formulation and adoption of remedial measures permitting a better correlation of un derground property rights."

Some affirmative action by either court or legislature, whereby the coequal rights of all the owners may be recognized and protected, is sorely needed, and this regulatory action may well be predicated on the magnitude and gravity of the public interest involved. The principle of justice between owners would seem to be incentive enough, but if more grounds

for action are required, good technology and good economics amply justify the acceptance of unit operation as in the public interest.

Now that natural gas has taken on country-wide popularity as the best of all fuels and is recognized as even more valuable and essential in the prevention of actual waste of oil, through nonrecovery, the act of permitting unused gas to escape calls for the prompt exercise of the police power of the state. Any method in the development and operation of oil pools that is more efficient than that encouraged, if not required, under the old competitive system of getting the other fellow's oil first, should not only be accepted but be approved under authority of law. Unit operation is that more efficient method.

That both public and private interest need to be protected from present methods is forcibly shown by the recent record of two wells in California which have already turned into the pipelines nearly five million dollars' worth of oil and gas but from which gas and gasoline vapor worth more than ten million dollars have gone up into the air—a total loss to present and future citizens of that state. Aside from the fact that these two wells happen to be on Federal leases, the interest of the general public in the wasted fuels is far too large to be overlooked. It is to prevent more losses of that magnitude that the idea of self-regulation by voluntary co-operative action is winning increasing support within the industry.

Self-regulation in the handling of an oil pool means both efficiency in development and operation and the determination of equities among the owners, and this can best be accomplished by unit operation. By this plan only can each and every owner secure full economic benefits. By this plan only can the public be assured of the largest possible supply of oil and gas from a particular field, won from the ground at lowest cost, and over a period measured by market demand rather than fixed by individualistic greed.

Justice to all owners and benefit to the public can both result from this observance of natural and economic law in recognizing the oil pool as the natural unit.

Major Interests to Control New Field Indicated in Crane County, Texas

By Paul Wagner
N. P. N. STAFF WRITER

HOUSTON, May 29

SUCCESSIVE showings of gas found in the No. 1 J. B. Tubbs wildcat test, Sec. 8, Block B-27, western Crane county, are pointing the way more definitely to the opening of a new oil field in the Permian salt basin geological province.

The owners, Cranfill Bros., of Dallas, and the Gulf Production Co., have shut down temporarily on the Tubbs after getting a flow of 1,500,000 cubic feet daily at depth of 2811 feet, but will continue drilling to the 4500-foot level, if necessary, to find oil production.

First shows of gas were found at 1400-1600 feet, but in negligible quantity. Another show, at 2665-2675 feet, amounted to between 50,000 and 75,000 cubic feet daily.

Formations drilled in the Tubbs test have been running structurally high by comparison with the Cranfill-Lea failure, six miles east in Crane county and the Gulf's old dry hole on the Hutchings ranch, Ward county, both of which bear on the area for geological correlations. Despite its low structural character, however, the Hutchings well did test non-commercial quantities of oil at approximately 4800 feet.

The fact that the Tubbs has been running approximately 550 feet higher structurally than the Hutchings will make any test stopping above the 4300-foot level inadequate for the area. Even should the Tubbs prove dry, structural conditions found there will call for further testing on the Gulf's solidly-owned block to the northwest of the present location.

Formation samples from the Tubbs show the white lime section was topped at 2475 feet, surface elevation 2526 feet, or 51 feet above sea level. This is 550 feet higher than the white lime was found in the Hutchings test and 775 feet higher than in the Cranfill-Lea.

Although the aforementioned white lime top is accepted by the writer, the presence of a considerable anhydrite has caused a number of geologists to use different figures, ranging from 2490 to 2530 feet. In general, however, the exact lime top is unimportant in the face of the formation correlating extraordinarily high reference to the Cranfill-Lea and Hutchings tests.

Should the present test make an oil field discovery, as it is expected to do, then there probably will be a limited amount of competitive development to the north in Secs. 2 and 3, and possibly to the south in Secs. 13, 17 and elsewhere. The main structure is believed to lie northwesterly on the Gulf block, overlapping on to part of the Tubbs ranch.

With minor exceptions, the Tubbs-Waddell area is entirely under control of major operators. In a few cases, where ownerships are not shown on the accompanying map sketch, parcels of land are held by royalty companies.

Under Secs. 20 and 21, Tubbs sold one half of the mineral fee to the Gulf Production Co., but the other one-half is owned in fractions by the Southland Royalty Co., Adams Royalty Co., Peerless Oil & Gas Co., and the Dixie Royalty Co.

Operators are watching the No. 1 stateland test of the Landreth Production Co., in 7-18S-38E, Lea county, New Mexico division of the salt basin region, for its bearing on a possible extension of the Hobbs "high" producing area.

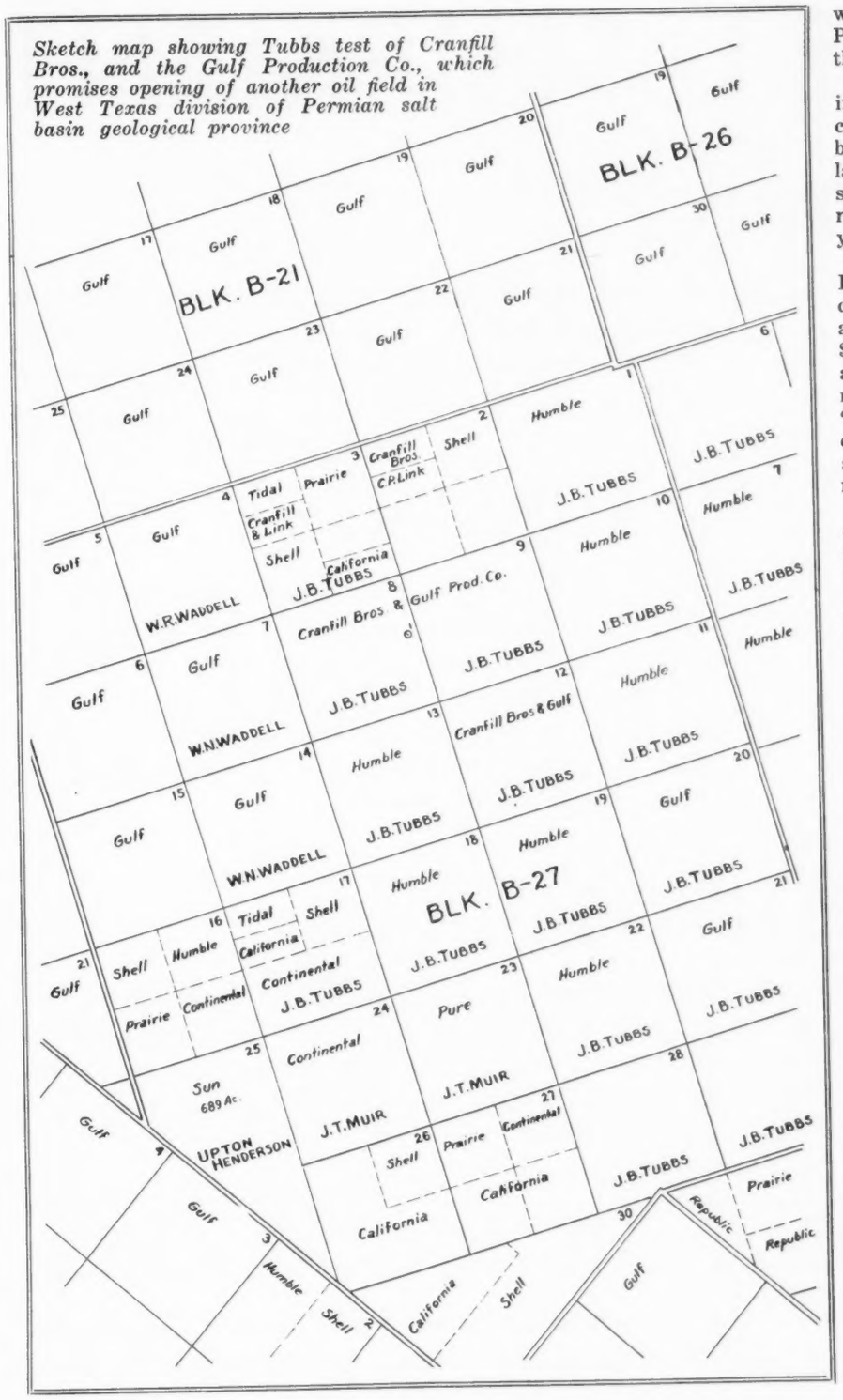
With surface elevation of 3673 feet, the Landreth test topped the anhydrite marker formation at 1680 feet, somewhat lower than the Humble's northwest extension on the Bowers but still reasonably high structurally.

The Humble's Bowers, which for several months has been the best well completed in the Hobbs field, is under exploitation for 7275 to 7650 barrels daily since its recent opening.

Total storage capacity in Lea county, belonging to the Atlantic, Humble, Midwest, Texas Pacific and Texas companies, amounts to 483,000 barrels, divided as follows:

Atlantic, 110,000 barrels capacity, 3016 barrels stock; 106,984 barrels room; Humble, 128,000 barrels capacity under construction; Midwest 55,000 barrels capacity, 50,360 barrels stock, 4640 barrels room; Texas Pacific, 173,000 barrels capacity 25,000 barrels stock, 148,000 barrels room; Texas Pipe Line, 145,000 barrels capacity, 123,315 barrels stock, 21,685 barrels room. In addition, the Atlantic has another 55,000 barrel tank under present construction.

In the Gulf Coastal region of Texas,



Sketch map showing Tubbs test of Cranfill Bros., and the Gulf Production Co., which promises opening of another oil field in West Texas division of Permian salt basin geological province

where the Refugio district appears to have hit its peak of daily production at approximately 40,000 barrels daily, fresh development is assuming importance at distance of 30 to 40 miles away.

The latest new area in the general Refugio district is in southern Victoria county, where Lion Oil & Refining Co.'s No. 1 McFaddin, about 30 miles northeast of earlier production, is showing for a good gasser on drill stem test at 3842 feet. The Lion owns 5000 acres nearby and The Texas Co. approximately 9000 acres.

Seven miles south of the Pettus field, on the Bee-Goliad county boundary, the No. 2 Hicks test of Nichols and others is spraying about 20 barrels daily of 40 degrees A. P. I. gravity oil found in association with 15,000,000 cubic feet of gas at 3615-3641 feet.

The Nichols-Hicks area is roughly 30 miles northwest of Refugio and may be tapped by future pipeline extensions past it from Refugio to the Pettus development. The Pettus area was extended two miles west 10 days ago[1] by the Cosden Oil Co., Inc., whose McKinney well in the John Pace survey is now being offset by the Barnsdall Oil Co.

Geologically, the production found in the Pettus area comes from monoclinal structure in marine Jackson beds. It differs from somewhat similar production in the Mirando division of the Laredo district, where non-marine Jackson beds give up the yields.

A land leasing play in the general Bee county region is now taking place close to the town of Normana where acreage has reached bonus levels of $30 to $75, The Texas, Shell, Gulf and Humble companies taking up most of the leaseholds. There, a "plug" has been mapped by geophysical methods, starting activity on a structural basis in advance of information gained by drilling.

The Texas Co. is making core tests on a block east of Normana and the Sun Oil Co. is checkerboarding "protection" acreage in the vicinity of Candish and across into Goliad county. Bonuses of $3 to $5 an acre are being paid.

Agreement Sought On Pipeline Law

HOUSTON, May 31.—Efforts are being made by committees representing the Texas division of the Mid-Continent Oil & Gas Association and the Independent Petroleum Association of Texas to agree on regulations to be recommended to the railroad commission for application of the new pipeline law, which becomes effective in June.

If committees of the two associations can work out co-operatively regulations on which they can agree unanimously it is believed the railroad commission, which administers the state conservation laws and handles utilities problems, will find its work simplified.

The common purchaser clause of the bill, which is described as susceptible of several interpretations, is one phase of the statute that many companies have considered to be unconstitutional. It is said now, however, that if reasonable application of the law is made in the rules to be promulgated by the railroad commission then attacks on the statute may be averted.

Conferences held with regard to possible agreement on suggested rules have been headed by J. D. Collett, independent operator of Fort Worth, representing the Mid-Continent Oil & Gas Association's Texas division, and Tom E. Cranfill and Charles L. Morgan of the Independent Petroleum Association.

Mr. Collett, who expects to be away from Texas the next few months, has now relinquished his position in favor of Robert R. Penn, vice chairman of the Texas division committee dealing with curtailment and other current problems.

[1] NATIONAL PETROLEUM NEWS, May 28, 1930.

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Extension of Oklahoma City Pool Starts Drilling Inside City

By William F. Lowe
N. P. N. STAFF WRITER

TULSA, May 31

OKLAHOMA CITY, southwest Earlsboro and the Asher-Wanette area were the most active territories in the Mid-Continent during the past week. All are in Oklahoma. In Kansas the Voshell pool led in the news, for completions elsewhere were scarce and generally uninteresting. The Panhandle of Texas broke into the headlines with 13 completions. The result was a 6056-barrel gain in the Panhandle daily average production. This district averaged 112,672 barrels per day from 1827 wells.

At Oklahoma City a number of very interesting things happened. The week began with the completion of the Hall & Briscoe No. 1 Holms, SE NW SE, 10-11-3W, which made an initial flow of 10,630 barrels the first 10 hours. This well brought an extension of almost a mile to the northwest. Located as it is, within a few hundred feet of the city limits and in settled territory, it has increased the possibilities of all that part of the city.

The sand pay in the well was from 6341 to 6380. It is an edge well but there is nothing to indicate much of a slope away from the crest of the structure. As a direct result of this well, there has been a veritable scramble on the part of lot owners within the city to drill. A glance at the accompanying map will give a small idea of the speed with which these new locations have been made. It is quite probable that by the time this is printed there will be twice as many as shown herewith.

An extension of the restricted U zone of drilling has already been discussed by the city safety committee. Among the other rules laid down for the operator to follow are, 9½-pound mud to 5000 feet and 11½-pound mud from there on. Before a well is brought in all the fittings must be tested. There is also the little matter of $200,000 liability insurance per well. This one item in the new regulations is being attacked by all the operators.

Drilling restrictions are to be rigidly enforced within the corporate limits of the city and a $1000 drilling permit is required from all operators. Already there are several injunctions pending against both the city authorities and the would-be drillers. Property owners in a block where 40 per cent of the other owners have agreed to permit drilling, find themselves in a difficult situation. According to a recent city ordinance, the dissenters, though they may be a majority, have a minority vote in this proceeding. It is liable to be plenty confusing if the field spreads, as far as present production indicates that it may.

An illustration of just how bad this will be is shown in the northwest quarter of section two on the map. Here, the locations are running as high as six to ten acres. It is understood that the city restrictions will permit but one well to a city block. As these wells move into the residential district the hazards of oil production will rise accordingly.

The well of the Pandem Oil Co., formerly known as Cuniff et al., eight miles west of the city, had a hole full of salt water at a total depth of 6060 feet. It is to be drilled deeper. This well is located in N½ NW NE SE, 17-12-4W.

THERE were 14 completions made in the Oklahoma City area during the past week, though only one of these is over the 10,000-barrel initials. The production of the pool continues to be around 100,000 barrels per day. For another proration period the total daily production is to be kept well within the 140,000-barrel pipeline capacity of the field.

The Asher-Wanette area of Pottawatomie county Okla., had two new oilers in the last few days, both of which are better wells than the discovery. The first of these was that of the Wilcox Oil & Gas Co., in the NW SE 23-6-3. This well, the second in the new pool, flowed with tools in the hole, 1667 barrels the first 24 hours. The "Wanette" pay was found from 3512 to 3517.

The latest completion in this area is the Indian Territory Illuminating Oil Co., No. 1, SW NW 23-6-3. Its pay is a little higher than the Wilcox well, 3480 to 3490, and its production of 1165 barrels in 13 hours indicates a better well. The oil is 43 gravity and all the wells have from 10 to 15 million cubic feet of gas. All are to be prorated to 25 per cent of their production.

The discovery well of the Asher-Wanette pool, the Payne Drilling Co., No. 1 Bullock, SE NE 22-6-3, is holding at about 925 barrels a day. It owes its existence to what looked like an after thought. It was plugged back from the Wilcox on a chance that a small show above might mean production. The result was an 800-barrel flow which has since grown to its present figure.

There is still an argument among geologists as to just how to correlate the pay in this new area. It is still called the "Wanette" by many though it is claimed by others to be the Wewoka. The latter has not been found productive elsewhere in the state though the correlation seems to be correct. However, the new wells indicate that a pool of fairly generous proportions is being opened.

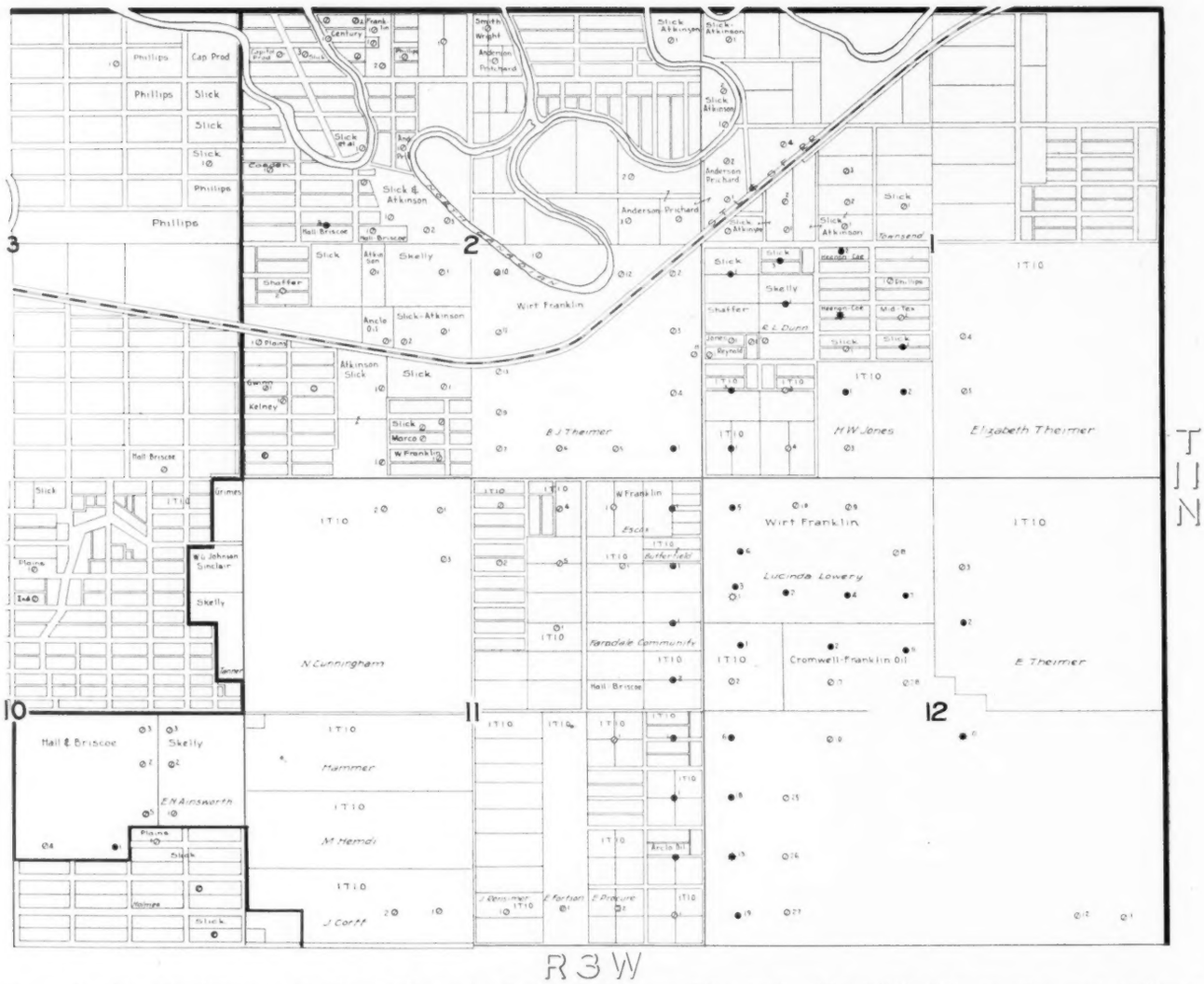
An extension southwest for the old Earlsboro pool of Seminole county is indicated by the Lippa Drilling Co., and Pure Oil Co., wildcat in NE SE NW 19-9-5. At a total depth of 4091, the well swabbed 305 barrels in 16 hours. Its pay is in the Hunton lime and though it was logged higher than in the Wilcox producers on the west edge of the Earlsboro pool, it may not last long. This is a characteristic of the Hunton in this area.

The operators are to tube the well and give the pay a thorough test before continuing to the deeper Wilcox. On the gas lift it is quite probable that it would make 500 barrels per day. It is showing no water and is much the best well of the area.

The summer session of drilling is on in Kansas where 39 new locations were made during the past week. A quarter mile extension to the Voshell pool of McPherson county was the outstanding development. Several good completions were also made in this pool. The outside well was the Gypsy Oil Co., No. 1 Stucky in SE SW SE, 33-20-3. This well swabbed 1085 barrels in 14 hours from a total depth of 3295. The company immediately staked two offsets.

Of the six completions in the pool, that of the Sinclair Oil & Gas Co., in SE NE, 4-21-3, is the best. It produced 770 barrels on its initial gauge. The pay was in the Wilcox from 3395 to 3430.

The Raymond pool of Rice county is to have a new outlet for its oil. A Siliceous lime pool with five produc-



Map showing development in the north end of the Oklahoma City pool. The black line on the west indicates the city limits. Most of the city blocks shown are in the settled district and the new well of the Hall & Briscoe in 10-11-3, has caused a number of rigs to spring up among the houses. Note the congestion in the NW of section No. 2

ing wells, it has had but small shipping facilities. There are nine locations and drilling wells in the area and the Independent Oil & Gas Co., is building a 20 car loading rack near the town of Raymond. The pool's potential is in excess of 8000 barrels per day and the new rack can take the major portion of this.

Howard-Glasscock Production To Be Curtailed Further

HOUSTON, May 31

FURTHER curtailment of Howard-Glasscock county production in West Texas will have the effect of preventing an increase in daily averages from the Permian salt basin region in June. A total of 16,900 barrels daily of prorated oil is to be taken by pipelines connected with the area in June as compared with 26,000 barrels daily in May.

Maximum allowable production in other prorated fields of West Texas continues at 110,000 barrels for the Yates field of Pecos county and 80,000 for the Winkler territory.

The Yates field potential was recognized in the prorating yardstick for May as 2,694,474 barrels daily, the figure being reached by multiplying one-hour test gauges by 12. Winkler potential is recognized at approximately 160,000 barrels daily in the yardstick used there.

Exploited production of the West Texas and southeastern New Mexico Permian salt basin region has been recently fluctuating between 305,000 and 325,000 barrels daily, including 18,500 barrels daily from Lea county, N. M.

Decision to reduce production in the Howard-Glasscock territory was reached at a meeting of the operators' advisory committee held in Fort Worth, May 30, when two types of prorating practice were agreed upon.

Wells producing from the 3000-foot level in the Roberts-Settles area of southeastern Howard county will be permitted maximum outlet of 125 barrels per well per day. In the western division of the district, beyond the Continental Oil Co.'s Settles production, and including the Coffee-Phillips pool of northern Glasscock county, production will be prorated 25 per cent on acreage and 75 per cent on average potential.

The Roberts-Settles division of the Howard-Glasscock area will be permitted to run a total of 8000 barrels daily of the June production. In the western division of the territory the 52 producing units get an allowance of 43 barrels daily on an acreage basis and the remainder of the yardstick apportionment will be figured on average potentials of wells on 40-acre producing units.

An Open Letter

Mr. H. F. Sinclair,
45 Nassau St.,
New York City.

Dear Mr. Sinclair:

I know you are busy and cannot attend to all the details of your business, but there is a situation in one of the hotels you bought from the Pierce Petroleum that I think should be remedied at once. You will understand that I call this to your attention merely to help you along in your new line of work.

A week ago Sunday, I think it was —no, it must have been on a Monday for I was out that way on business, and you see we seldom make business calls here on Sunday unless it is on some fellow who has dropped in for the day only—I stopped at your bus terminal and cafe east of Tulsa. Now this is a very nice place, all fixed up with green and tan curtains and marble or something. It seems to do quite a business in the cafe with what we call the "carriage trade" and by that I mean it doesn't go in for a line of hot dogs and soda pop as do so many of the places that handle your competitors' gasoline and oil.

I have never eaten in this place, personally, but I have heard it spoken of in complimentary terms. I did eat in the one at Miami, Okla., not long ago while returning from a trip to Springfield, Mo., where I had gone to try to find out who the Ajax Pipe Line Co. is but didn't find out anything from that Mr. Von Phul, Jr., up there who seems to be a bright young man but not overly talkative. Your cafe at Miami is very nice and appeals greatly to me on account of being willing to serve extra portions of butter.

Well, sir, knowing all about the reputations these hotels, cafes, etc., of yours enjoy I was quite nonplussed when, after buying a package of cigarets in the one just east of Tulsa (on Highway 66—The Main Street of America), I asked for matches and was told that they had none.

Now, Mr. Sinclair, if there is any failing I may be said to possess it is that of always being out of matches. It is generally known and it has gotten so notorious that chambers of commerce in various towns have passed resolutions on the subject.

I have never failed to find matches in hotels and cafes, even the cheaper sort, to say nothing about elegant places like those you now own. So, you will appreciate my chagrin at finding none in your cafe. I had to drive nearly a mile to a filling station to find a light. I regret to say that I was forced to give my match trade to one of your competitors.

Maybe they are not out of matches at your place all the time, but the young lady said they were that day. She was quite polite about it and I hope you will not act harshly with her on account of what I have said. But I think you should speak to someone in authority there so that the mistake will not recur to embarrass you further.

I do not intend to give this matter publicity except to print it. To assure you that I am not holding it against you and am willing to help you all I can in what, to you, is a new line of business, I hereby authorize you to reserve a room with bath and one door at your Rolla, Mo., hotel, sometime in July. I prefer a room with at least one window, if that can be arranged.

Kenneth B. Nowels

I regret that I cannot tell you the exact date when I will take up this reservation, but you can tell your assistant at Rolla that he can keep putting other people in until I arrive and he can then move out whoever happens to be occupying the room. Or, at a little later date, I can give you the exact time when I shall be there. Maybe that would be the better plan.

I am afraid it will be along about nine or ten o'clock at night when I reach Rolla as this year they have torn up part of the Main Street of America not previously torn up and are sending people around by way of Cabool, which makes it 369 miles from Tulsa, or one and one-half days in my Model T.

You see they have a law in Missouri that the tourist business must be passed around to the various towns, so because last year they tore up a part of the Main Street and sent people to the north, this year it is the turn of the towns to the south of the Main Street. You are lucky in that the detour brings them right into Rolla and your hotel should do a big business.

We have been wondering when you will honor us with a visit. It has been some time since you were in Tulsa and the town has grown so much that you probably would put in an interesting day seeing the new features. We now have 140,000 population by government count, although by including Broken Arrow, Sand Springs, Claremore and the territory north to the Kansas line we have more than a quarter million.

Here is an interesting tip for you: We are planning to make the Arkansas River navigable. If we succeed, you might want to put in a hotel down around Leonard or East Muskogee to catch the steamboat trade. The only drawback to all-year-round steamboating is a lack of water except in April.

Hoping this finds you and the folks all well, I am,

Sincerely Yours,

* * *

K. B. Nowels, who has been the supervising engineer of the U. S. Bureau of Mines petroleum research office at Laramie, Wyo., since February, 1926, has resigned. He will become chief petroleum engineer for

the Forest Oil Corp., Bradford, Pa. His resignation becomes effective on July 1. Mr. Nowels has made quite a name for himself through his reports on field problems and methods. He entered the Bureau service in July, 1923, coming from the petroleum engineering staff of the Midwest Refining Co. in the Salt Creek field. He was stationed successively at Shiprock, N. M., Laramie and Dallas, and then returned to the Laramie office as its head.

* * *

Everything in nature has its use, except old bull wheels, and the carbon dioxide gas found in northern Colorado by the Continental Oil Co. in 1926 is to be turned to commercial advantage by the Dry Ice Corp. of America, which has made a deal with Continental. The two wells that have been drilled to this gas are near the little town of Walden, in the North Park district.

* * *

The J. M. Huber Petroleum Co., of Borger, Tex., has bought the gasoline plant of the Pacific-American Gasoline Co. in that district for $600,000. The plant has capacity of 15,000 gallons daily. Small oil production and contracts on casinghead gas were included in the transaction.

* * *

George R. Elliott has been made advertising manager for the Bridgeport Machine Co., Wichita. He has revived the "Bridgeport Driller," snappy house organ, which had considerable vogue in the Mid-Continent several years ago. Mr. Elliott's previous contracts with the oil industry were as advertising man for Skelly Oil Co. at El Dorado and prior to that as advertising manager for Truscon Steel Co.

* * *

One of the most persistent of oil men is T. B. Slick. Ever since he sold his production and half interest in undeveloped acreage to the Prairie last year he has forged ahead as though he hadn't just taken in around thirty million dollars. In fact, he gave the impression that the world was depending upon him to supply it with oil. He has built up a potential production in the neighborhood of 60,000 barrels daily since he sold.

Recently he broke out in an orgy of lease buying. He went all over the Southwest—in Refugio, Texas, Graham districts of Texas, Mississippi, Kansas and Oklahoma. A late purchase was 26,000 acres in a "spread" over Oklahoma, Logan, Noble, Garfield and Pottawatomie counties, Oklahoma. This he acquired from L. H. Wentz. Mr. Slick occasionally picks a "sour" play, but his percentage of winning is very high.

* * *

E. C. McCarnes, production superintendent for the Transcontinental Oil Co. in West Texas and New Mexico, has gone to Roumania to look over holdings of the company there. W. E. Wrather, consulting geologist, Dallas, is making the trip with Mr. McCarnes.

* * *

Died: In Tulsa, William Beck, superintendent for the Independent Eastern Torpedo Co., from burns sustained in a tank car of nitric acid. He was 48 years old and was well known in the producing fields of the Mid-Continent.

* * *

Edward H. Moore, founder and former president of the Independent Oil & Gas Co., has started his first well since his retirement from the Independent last November. Operating under the name Mid-Okla Petroleum Corp., Mr. Moore, with J. J. Deaner, of Okmulgee, is drilling a wildcat in 28-17-2E, in the northwestern corner of Lincoln county, Okla.

* * *

Died: in Muskogee, Okla., Ben M. Bell, of Wichita Falls. He had resigned a few days earlier as president of the Pandem Oil Corp., which operates in north Texas. Mr. Bell was 38 years old and had lived in Wichita Falls since 1912. He was a scout and land man for the Sun Oil Co. before going with the Pandem as vice-president. His widow and two daughters survive him.

* * *

C. F. Cuniff, trustee for the majority stockholders of the Pandem Oil Corp., recently was elected its president.

* * *

The Continental Oil Co.'s offices in Amarillo have been vacated and the company is represented there by Scout C. E. Easterwood. Another scout, C. G. Scott, recently resigned to enter the brokerage business.

* * *

Married: Miss Vernice Morgan and W. W. Smith, drilling superintendent for the Arkansas Fuel Oil Co., Shreveport.

* * *

Shell Petroleum Corp. has transferred Clarence Knight, geologist, from Muskegon, Mich., to Ardmore, Okla.

* * *

Offices of the Rogers Oil & Gas Co. are being moved from Holdenville, Okla., to Oklahoma City. W. G. and Bascom H. Rogers control the company. R. W. Laughlin, geologist, has been in charge of the branch office that has been maintained in Oklahoma City for more than a year.

* * *

A division office for oil and gas sales has been opened in Chicago by the Skelly Oil Co. with W. S. Rawitzer in charge. R. E. Roberts is assistant division sales manager. Offices are at 2123 Engineering Building, 205 West Wacker Drive. This office will have charge of sales in Illinois, southeast and southwest Wisconsin and part of Indiana. A Skelgas zone headquarters was established in Chicago some time ago.

A recent incorporation by men well known in the Mid-Continent Oil industry is that of the Allied Construction & Engineering Co., Tulsa. M. A. Rutis, F. E. Richardson, W. C. Ray and A. W. Rush make up the firm, whose offices are in the National Bank of Commerce.

Mr. Richardson, vice-president and general manager, was, until a short time back, assistant chief engineer of the Continental Oil Co. He had served four years in this capacity and in that of chief construction engineer with the Continental and with the old Marland Oil Co.

He was one time general superintendent of operations and construction for the Producers & Refiners Corp. and it was under his direction that the refinery was built at Parco, Wyo. He also laid out the model town that was built near the plant.

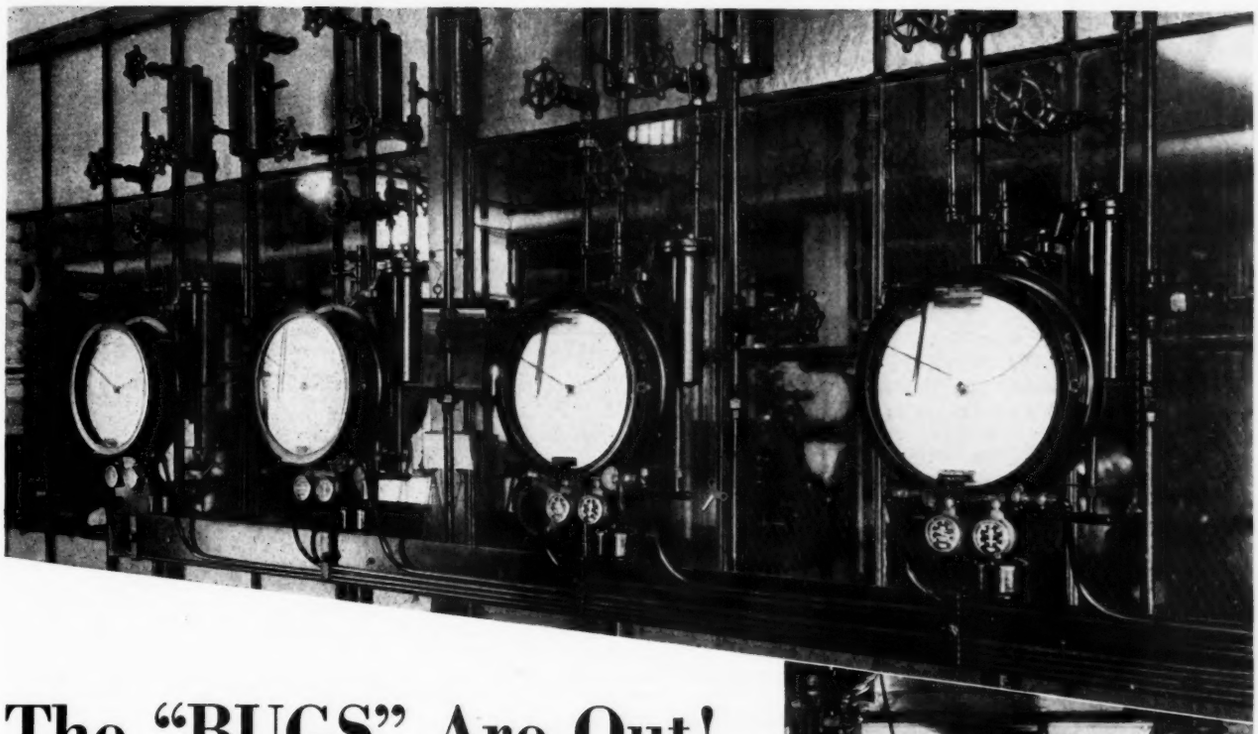
Mr. Rutis, of the Allied company, is associated with Tower & McCanna, oil producers, Wichita Falls. W. C. Ray is a drilling contractor at Fort Worth, usually known as "Wild Bill." Mr. Rush was of the pipe line contracting firm Gunn & Rush. With the death of L. D. Gunn in February, the firm was brought into the new Allied company. The company is engaged in all engineering, design and construction that pertains to refining, pipe line, natural gasoline and production operations.

* * *

The attitude of Governor Bilbo, of Mississippi, is somewhat puzzling. He vetoed the oil and gas conservation bill recently passed by the legislature on the ground that it would retard development. In his veto message he made the point that the large companies would not push development in Mississippi because there is an overproduction and the only hope lies in giving the small operators such freedom of action that they will go ahead and do the exploratory work. Suggestion to the governor: If Mississippi has any blue sky laws, get them repealed at once and some type of development will be immediately forthcoming.

* * *

A recent tour of inspection of properties of The Texas Co. in Kansas, Oklahoma and Texas, included the following officials: V. L. Porter, assistant to R. Ogarrio, vice-president in charge of production; R. F. Baker, chief geologist; E. D. Hopkins, secretary of Mr. Ogarrio; A. R. Wilson, v. p. and g.m. of the Texas Production Co., Denver; W. V. Bowles, division manager, south Texas; L. E. Barrows, division manager, West Texas and New Mexico; R. C. Stewart, division manager, Louisiana-Arkansas; J. A. Bermingham, vice-president The Texas Co. of California; J. L. McMahon, division manager, north Texas A. C. Smith, assistant division manager, north Texas and E. R. Filley, division manager, Oklahoma-Kansas-Kentucky.



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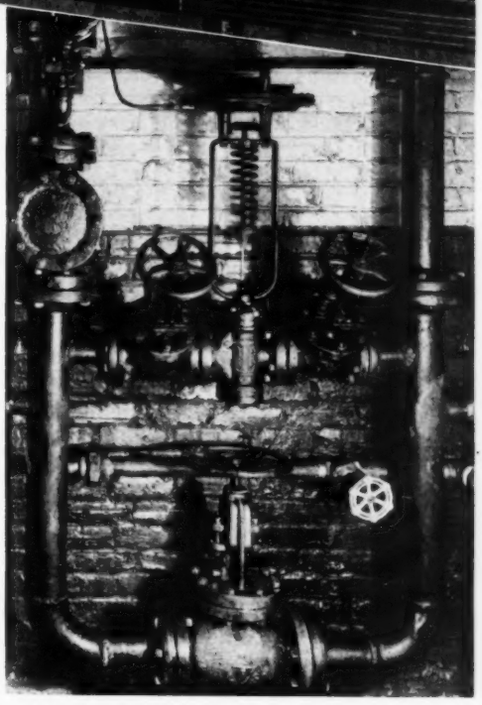

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California's Output to Drop Inside 600,000 Barrels Within Two Weeks

By Jack N. Westsmith
N. P. N. STAFF WRITER

LOS ANGELES, May 30

SOME likely showings in the upper sands at Playa del Rey, a further reduction in the state's daily output and a few more or less promising reports from wildcat areas, are the features of the California situation.

Active co-operation from all except a few operators in the Pacific Coast fields reduced the state's estimated daily yield to within reaching distance of the desired 600,000-barrel mark. Conservationists predict that this co-operation, combined with the important factor of natural decline in flush fields of Santa Fe Springs and Signal Hill, will reduce the state's crude output to 596,000 barrels daily during the next fortnight.

The latest figure on estimated actual production is 605,000 barrels daily.

At a meeting of the operators' fact-finding committee May 29, the curtailment program was reviewed and suggestions made for modification of the state's potential production to allow for natural decline the past month from the previous figure for potential of 1,107,050 barrels per day. Figures will be submitted to the General Operators Committee and the necessary allowable production schedules issued to govern operations during June.

Theoretically, iron-clad curtailment agreements are being circulated among California operators which will provide the umpires with power to restrict daily pipeline runs from individual operators and leases to the agreed amount. Although there have been numerous pow-wows among operators in the Santa Fe Springs field in an effort to obtain 100 per cent co-operation of the proration program, there were four small operators and the Wilshire Oil Group who, at the close of the week, had not signified their willingness to accept the agreements.

Santa Fe Springs is not the only field out of line. A few small producers at Signal Hill have consistently refused to prorate their output, and the Midway-Sunset field, in the lower San Joaquin Valley, is down to its allowable production only through the co-operation of major interests.

In a letter to operators of this field, the West Side Operators' committee endeavored to point out the folly of not reducing daily production to the approximate allowables per lease. The letter reads as follows:

"H. P. Grimm, oil umpire, has called the attention of this committee to the fact that quite a number of the companies in this field have produced considerably in excess of their allowable production for the month of April. However, curtailment for the entire field was held in line, but only because six of the larger companies produced considerably under their allowable.

"It has recently been very clearly defined that each field will be considered from now on as a separate unit and responsible for its part of the state's new allowable figure of 596,000 barrels, and it is up to the individual operators of the Midway-Sunset field to see that the field is held to its daily pro-rata figure as published by the umpire.

"This committee would like to call your particular attention to the unfortunate circumstance that recently occurred at Santa Fe Springs in the shape of a large cut in the crude oil price, caused solely by a very few operators and working a great hardship on a large majority that had curtailed. Let us avoid any such possibility in the Midway-Sunset field."

Production activity has been confined chiefly to the Del Rey field, where Union Oil Co. is preparing to make a production test of its Del Rey No. 1. This well picked up a shallow sand at 3530 feet. While nothing is being given out concerning showings, it is understood a successful water shut-off has been obtained above an oil sand reported to have all the ear marks of a productive pay zone. Union's well is approximately half a mile south of Ohio Oil Co.'s discovery well, and shallow cores indicated it was over 100 feet higher on the structure than the discovery.

Apparently the shallow sands do not underlie Ohio's holdings, although the Jergins Trust Robinson 1, located on the beach, midway between the discovery and Union's test, is preparing to test this upper sand found at about 3600 feet. Twelve new permits to drill in this field were issued by the Los Angeles City Council.

Rapid decline of production from active wells in the Santa Fe Springs field continued to be of chief interest to Los Angeles Basin operators. Edgewater conditions are increasing rapidly throughout the field and are having a particularly disastrous effect on new completions in the Clarke zone. A slight increase in water content of a well nullifies the effect of compressors because of the greater weight of water compared to oil per given volume. However, in the shallow sands, compressors have been used to increase production as much as 350 per cent in wells cutting 20 per cent.

Clean wells may yet be obtained on the top of the structure at "the Springs" by completing them in the Nordstrom above 5300 feet, in the Buckbee above 5800 feet, in the O'Connell above 6800 feet, and in the Clarke above 7900 feet. Few really

California Proration Figures for June

At a meeting of the California Fact Finding Committee, held May 29 to establish new potential and allowable production figures for the several oil-field groups during the proration period of June 1 to 15, the following figures were announced:

Total potential production for the state was found to have declined from 1,107,050 barrels established May 15, to 1,092,267 barrels per day for the ensuing period.

The new potential for Group One gives nine fields 644,781 barrels daily average, as follows: Santa Fe Spring, 191,000; Long Beach, 167,268; Ventura Avenue, 88,008; Elwood, 82,711; Seal Beach, 38,210; Kern Front, 22,417; Poso Creek, 23,092; Round Mountain, 10,314; Maricopa Flat, 21,761 barrels.

Group One fields will probably be allowed to produce 54.4 per cent of their potential.

Thirty fields in Group Two have potential of 380,486 barrels daily; and Kettleman Hills, which stands alone as Group Three, is rated at 67,000 barrels.

clean projects have been obtained during the past month and the cut has run to as high as 70 per cent in wells completed in the Nordstrom below the 5325 foot level, even though they have been located only a short distance from the structural high.

Deep zone production from this field for May 28 was estimated at 101,800 barrels from 312 wells to give an average of 328 barrels per well. This is the lowest production for the field since Dec. 28, 1928, when daily output was 110,965 barrels from 283 wells and compares with the peak production of 309,340 barrels per day from 384 wells, established August 13, 1929. This peak included 26,217 barrels from 224 wells in the shallow zones, whereas present estimates include only 8925 barrels from 74 shallow producers, the balance having either declined or shut in under conservation programs.

It is estimated that approximately 33 per cent of the field's total possible production is curtailed, or that the potential production is in the neighborhood of 173,500 barrels. There are 83 deep sand wells shut in and 313 producing and 157 shallow projects standing idle, with 74 producing, making a total of 626 wells capable of yielding 163,500 barrels, or approximately 275 barrels per well.

Five completions brought in during the week yielded only 493 barrels, an average of 99 barrels per well. General Petroleum Corp. obtained the prize of the lot in its Santa Fe 160-C, completed at 7134 feet for an initial production of 310 barrels of 32 gravity oil. The Texas Co. completed its Matern 3-10, in the upper Clarke zone, at 7915 feet, for only 7 barrels of 31 gravity oil. The lack of kick in these Clarke wells has put a wet blanket on what little interest has been kept alive by numerous deep tests of the area.

On the Western Front

By Jack N. Westsmith
Los Angeles

W. C. PETTINGILL, well known to marketing men throughout the western states, has been appointed as general director of sales for Rio Grande Oil Co. with headquarters at Los Angeles. Mr. Pettingill was for ten years associated with the Tidewater Oil Sales Corp. of New York, having risen from salesman in 1920 to the position of western regional manager in charge of marketing activities from Denver to the Pacific Coast.

In his new position Mr. Pettingill will have charge of sales and marketing activities for Rio Grande throughout the southwest.

* * *

Associated Oil Co. Southern Division, will hold its picnic at Huntington Beach on June 14. According to H. A. Beall, chairman of the general committee, the affair will be the best ever organized by the company. "No speeches, and lots of fun," is to be the slogan.

* * *

Richard L. Triplett, formerly with the Gypsy Oil Co., of Tulsa, Okla. is now connected with the geological department of the Western Gulf Oil Co., Los Angeles.

* * *

B. L. Laird, for the past four years superintendent of the land lease department of the Texas-New Mexico division of the California Company, with headquarters at Dallas, has been transferred to the San Francisco office of Standard of California.

* * *

P. M. "pat" Longan, executive vice president of Milham Exploration Co., has taken an extended leave of absence to recover from a serious illness that has kept him from his desk for several months. C. E. Tabor will be in charge of the company's California interests during Mr. Longan's absence.

* * *

Sam Smith, production superintendent for Ohio Oil Co. in Wyoming, has been transferred to the company's operations at the new California field of Playa del Rey, where he has assumed charge of the development work.

* * *

Harry Gody, formerly superintendent for Signal Oil and Gas Co.'s operations in the San Joaquin valley has been promoted to the position of general superintendent of the company's operations.

—Photo by Curtis Biltmore Studios L. A.
W. C. Pettingill, general director of sales Rio Grande Oil Co.

H. H. Clark, well known to oil men in the East as well as in California has been appointed vice president in charge of sales for the Baash-Ross Tool Co.

Mr. Clark, who has served as sales manager for the company since 1926, became identified with the oil industry in 1913, when following his graduation from Stanford university, he entered a branch sales office of the Union Tool Co. He was transferred later to the company's Carnegie plant where he rose to the position of assistant treasurer and sales manager of the eastern division, leaving that position to enter the employ of the Baash-Ross company.

* * *

Does anyone know Clyde Kidney? described as 37 years of age, five feet five inches tall, weight 140 pounds, blue eyes, blond hair and a dimple. Mr. Kidney, when last heard from, was working for the Humble Oil and Refining Co., in Corsicana, Tex. It would be appreciated if anyone knowing this man would notify his mother, Mrs. Clara Cunningham, 2414 E. 15th St., Long Beach, Calif.

* * *

Charley C. Kifer, formerly division superintendent for Shell Oil Co. at Ventura avenue has been made superintendent of the company's Long Beach division, which has been enlarged to include the Brea division. C. B. White has been transferred from superintendent at Santa Fe Springs to succeed Mr. Kifer at Ventura avenue.

* * *

Bill Allen, superintendent for Shell Oil Co. in the San Joaquin valley, has been appointed chairman of the east-side proration committee that will have charge of voluntary curtailment proceedings in "the valley."

Bendable and Dependable for Refinery Service

ONE factor more than any other has been responsible for the majority of America's leading refineries to standardize on NATIONAL Pipe for new units, extensions and replacements. That factor is the desire for substantial operating profits, year in and year out. Regularity in profits depends largely on regularity in efficient operation. This, in turn, requires dependable mechanical equipment, more especially dependable piping.

During its more than half-century of constant development, NATIONAL Pipe—leading in preference—has won the confidence of refiners who expect from pipe a full measure of those qualities that reduce shut-downs and defer replacements—qualities that meet every requirement of strength, ductility, uniformity, soundness of weld and durability in service.

When you need pipe of any size, for any pressure, for any type of joint, or for any form of manipulation—specify NATIONAL. It is bendable and dependable.

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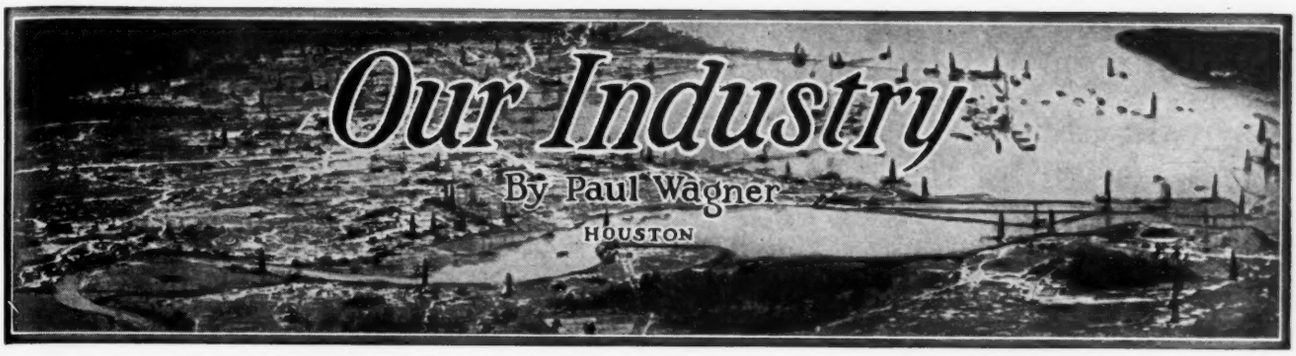


WARREN L. TODD, production vice president of the Simms Oil Co., Dallas, dates his original work in the petroleum industry back to the days of Spindletop and Batson, in the Gulf Coastal development near Beaumont. His initiation was in digging slush pits, after he had dropped off the train at Beaumont at the age of 19, while on his way from his native state of Georgia to Houston, looking for a job.

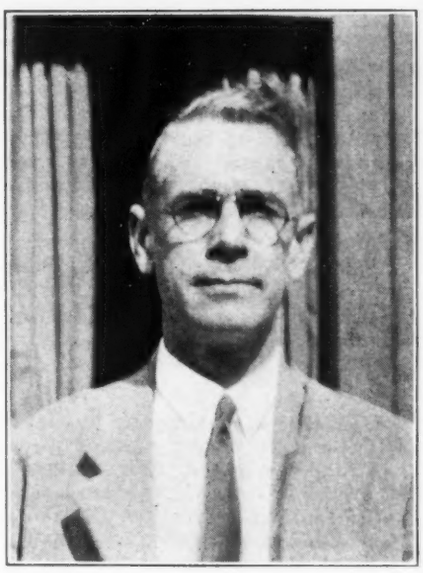
Afterwards, Mr. Todd was a gauger for the Rio Bravo Oil Co., Southern Pacific subsidiary, and later for the J. M. Guffey Petroleum Co., under which name the present Gulf Production Co. originally operated. He then engaged in business for himself before becoming "farm boss" for the Sun Oil Co., at Vinton, in 1911, and subsequently going to Shreveport as production superintendent of the Atlas Oil Co., controlled by the Potter Palmer interests of Chicago.

When Mr. Todd left the Atlas he went to Tulsa as vice president of the United Central Oil Co., subsidiary of the United Gas & Electric Co. Later, the company was merged with the old White Oil Corp., and he found his headquarters removed to Houston. Later, he resigned in order to organize the Trinity Drilling Co. at Dallas, going with the Simms Oil Co., when it purchased the Trinity in 1924.

Joseph W. Elsbury, for years chief scout of the Marland Production Co., at Fort Worth, before the consolidation of the Marland Companies into the reorganized Continental Oil Co. of Delaware, is now crude oil buyer for the Crown Central Petroleum Corp., with Houston headquarters.

* * *

Bubbles of natural gas coming from a 600-foot hole on the John H. Schoenheit property near Phoenix, Ariz., are reported in a letter to this periodical by J. A. Law, a citizen of Phoenix, who made a personal investigation of the showing. According to Mr. Law, the hole was originally drilled for water. He says there is sufficient gas present to blow an ordinary funnel 50 feet in the air when ignited after an accumulation. The drill, he says, penetrated oil shale formations at 100 and 300 feet; and at bottom it stopped in oil impregnated sand.



W. L. Todd

* * *

Baker Hoskins, Jr., widely known in geological circles of the southwest, now represents the Shell Petroleum Corp., in the Laredo, Texas district. He is a member of the American Association of Petroleum Geologists.

* * *

Active operations of the Allied Petroleum Corp., Los Angeles, are being directed by J. B. De Maria, its president. He lives at San Francisco but spends most of his time in Los Angeles. E. P. Hoisington has left the Allied in order to devote all his time to personal interests.

* * *

A local organization of oil field scouts has been formed at San Antonio with D. C. Dewitt of the Simms Oil Co., as president. It will be known as the Southwest Texas Oil Scouts Association. Jesse L. Bullard of the Shell Petroleum Corp. is vice president and J. E. Beal is secretary-treasurer. J. V. Adams of the Humble Oil & Refining Co's. San Antonio division is in charge of drafting constitution and by-laws.

* * *

B. R. Jackson, representative in the United States of the Anglo-Persian Oil Co., Ltd., of London, is making office headquarters at 25 Broadway, New York City.

* * *

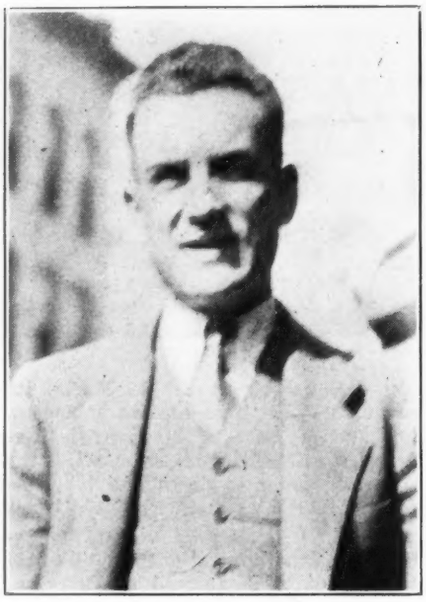
Arthur L. Hawkins has opened consulting geological offices in the Continental Oil building at Denver. He was previously, for eight years, connected with the Transcontinental Oil Co.

* * *

Silas P. Borden, known familiarly to his friends as "Si," was long identified with geological work of the Gulf Refining Co. of Louisiana at Shreveport, before engaging in busi-

Baker Hoskins, Jr.

S. P. Borden



Frank A. Morgan

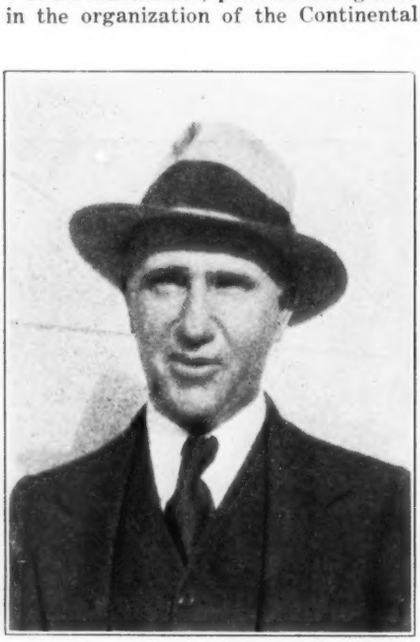
ness for himself several years ago. Mr. Borden and associates have recently been very successful in their operations in the Carterville area of Bossier parish, Louisiana, where their properties were sold a few weeks ago to the Arkansas Fuel Oil Co.

* * *

Frank A. Morgan, chief geologist of the Rio Grande Oil Co., Los Angeles, originally worked the Pacific area up the coast from Santa Barbara where the Elwood Terrace field is now under joint development by the Rio Grande and the Barnsdall Oil Co. of California. The Rio Grande took up the prospect and afterwards interested the Barnsdall interests in the development. Mr. Morgan is now a director in the Rio Grande.

* * *

J. H. Hassheider, petroleum engineer in the organization of the Continental Oil Co., operates in the Permian salt basin region of West Texas and southeastern New Mexico, where he is widely known. He makes headquarters at Big Spring, Howard county, Texas, near the Roberts-Settles development area, in which the Continental is largely interested.



J. H. Hassheider

* * *

W. L. (Bert) Childs, vice president and general manager of the Reed Roller Bit Co., Houston, takes an active part in civic and fraternal affairs in addition to heading up the operations of a widely known manufacturing establishment. Mr. Childs is a past potentate of the Shrine organization at Houston and at present is busily engaged in itinerary work for the proposed Chamber of Commerce good-will tour.

* * *

W. P. Lassater has been transferred from the New York offices of the Oil Well Supply Co., to Tampico, where he is now sales manager of the subsidiary Compania Consolidada Oilwell, S. A.

* * *

Grady Kirby, formerly San Antonio district geologist of the Gulf Production Co., is now geologist for the Sinclair Oil & Gas Co., in South Texas territory. Mr. Kirby was for years stationed at San Antonio, working a wide expanse of territory from Laredo northeasterly through the Interior Coastal plains region.

* * *

John E. Kelly, a member of the American Institute of Mining & Metallurgical Engineers, has been elected vice president and director of the Twin States Natural Gas Co.

* * *

H. L. Eibe of Coalinga is in charge of drilling on a test rigged up on the Harvester ranch, near Corcoran, California. Operations are carried in the name of the Jordan Oil Co., a close corporation, owned almost entirely by Robert Jordan, formerly of Oklahoma.

* * *

J. C. Trolle, formerly of The Texas Co's. Port Arthur Works, has been transferred to New York, replacing Fred W. Johnson, now in C. K. Longaker's office.

* * *

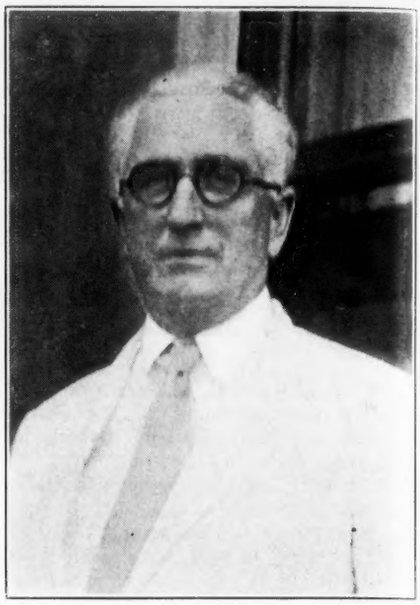
John Biscoe, formerly Vacuum Oil Co. scout at Eastland, in the general Ranger territory, has opened a photocopy shop at Tyler, in the East Texas region.

* * *

W. R. Wellborn has been transferred from the Allen, Okla., producing district of the Louisiana Oil Refining Corp., to the Smackover, Arkansas, territory, as production foreman.

* * *

Leonard E. Vaughn is now in charge of export sales of the Byron Jackson Co., making personal headquarters at New York City. He was formerly in charge of California sales. Robert M. Cook, formerly Mid-Continent representative, has been transferred to Los Angeles as acting sales manager in California.



W. L. Childs

* * *

W. B. Hinton is drilling contractor on a test being drilled for the Mid-Kansas Oil & Gas Co., subsidiary of Ohio Oil Co., on the Waldrip tract, north of the Darst Creek field, in the Luling fault zone.

* * *

Maurice W. Grimm, one of the younger group of geologists in southwestern territory, represents the Tidal Oil Co., in the Shreveport district of Louisiana. An accompanying picture of Mr. Grimm was taken at the New Orleans meeting of the American Association of Petroleum Geologists.

Maurice W. Grimm

Search for Oil in Western Washington To Be Renewed This Summer

By Jack N. Westsmith
N. P. N. STAFF WRITER

LOS ANGELES, May 29

OIL possibilities of Western Washington are to be given several tests during the summer months by a newly formed oil company holding approximately 14,000 acres on five known structures, lying along the east shore of Puget Sound, between Seattle and the Canadian border.

The new company to be known as the Capital State Development Co. will develop acreage formerly held by Washington North Counties Petroleum Co., Inc., under the direction of the following men: Dan F. Smith, president; Cecil Morse, vice-president; Wm. S. Newton, secretary; Edward Miller, treasurer, all of Bellingham. Herbert Cass Thompson, of Long Beach, Calif. will represent the company in California.

A number of executives of large oil companies with holdings and development in Mid-Continent, Rocky Mountain and California fields are reported interested in the new enterprise that will be operated in strict conformity with the Government's conservation program if commercial crude oil production is obtained.

To eliminate competitive offset drilling, development will be along lines of a cooperative plan approved by operators in the northwest country. Rotary equipment will be used and operated by four crews of men working on six-hour tours for six days with relief crews to finish out the week. Standard cable tools and rigs have been used almost exclusively for previous tests on the area.

There are at present seven wells producing approximately 7 million cubic feet of natural gas per day in the Rattlesnake Hills area of Yakima Valley. The gas is distributed through 41 miles of pipe line to distributing systems in the towns of Prosser, Sunnyside, and Grandview, Wash. This production, on property developed by the Northwestern Natural Gas Co. of Wichita, Kan., was all obtained from shallow depths ranging from 600 to 1000 feet. Tests are under way in the area to determine deeper possibilities.

The Miocene Petroleum Co. completed a test well at Union Gap on the west end of the Rattlesnake Hills anticline for an estimated daily gas production of 6 million cubic feet from a depth of 930 feet. Water troubles kept the well from maintaining a steady flow but, due to favorable showings, the well will be deepened to at least 2000 feet before being abandoned.

Encouraged by results obtained in the Yakima Valley, the Capital State Co. will first make an attempt to obtain commercial gas production in the Puget Sound country, for distribution in Seattle, Tacoma and other large northwestern cities. As results obtained may warrant it, additional tests will be made in search of oil sands in the Hoh formation of undifferentiated Tertiary age consisting of upper Eocene, Oligocene and Miocene sediments.

According to geological reports the main surface oil showings—upon the strength of which a majority of the Western Washington drilling has been done—in this Hoh formation come near the base of the Oligocene or top of the Eocene beds. The presence of showings at this point in the formation is considered important in as much as there are more numerous folds in the upper beds than in the lower Miocene.

The well-defined anticlines extending along the coast north of Seattle include domes covering in some cases eight or nine sections of land favorable to oil production. Notwithstanding an often expressed opinion that the Western Washington area is cut by numerous dikes and that igneous rocks have intruded into the sedimentary beds, many geologists have reported these conditions to exist to no less an extent in other oil producing states, such as California, Montana, and Wyoming. Faulting as found in this northwestern state is claimed to be of the type found in these other producing areas and not deleterious to segregation of crude petroleum.

Standard Oil Co. of California several years ago made what was thought then to have been a conclusive test of Western Washington by drilling two wells in Grays Harbor County, both of which proved to be dusters. One of the tests drilled at Moclips to 3860 feet is thought to have been made in an unfavorable location, on the extreme down-hill side of the anticline. The other project was drilled to 4226 feet at Pacific Beach before being abandoned.

The following table indicates the status of various drilling and located tests in Washington:

Company	Well No.	Location	Depth	Type Rig	Condition
Acme Oil & Gas Co.	Acme 1	Bellingham	356	Standard	Drilling
Atkins, Edgar E.	.....	Mabton	Location	.....	.....
Cain Oil Co.	Chico 1	Chico	726	Rotary	Drilling
Smith, Dan	Sumas 1	7 mi. NE Sumas	325	Standard	Drilling
Felger, W. W.	No. 1	Vesta	1140	Standard	Mudding off
Flaming Geyser Gas Co.	Flaming Geyser	Enumclaw	2300	Combination	Fishing
Gray-Tac Oil Co.	No. 1	Aberdeen	200	Combination	Shut-down
Home Oil Co.	No. 1	Bellingham	Derrick	Combination	.....
Mottman, J. W.	Mottman 1	Tenino	3900	Standard	Drilling
Miocene Pet. Co.	Union Gap 1	Yakima	940	Combination	Cemented
Olympic Oil Corp.	Alger 1	Skagit Co.	Location	.....	.....
Simcoe Oil Co.	No. 1	Wapato	1535	Standard	Drilling
Union Oil Co., Cal.	No. 1	McGowan	2650	Combination	Side-tracking
Walstrom Oil Co.	Lake Goodwin 2	Snohomish County	Rigged up	Rotary	.....
West Coast Oil Co.	No. 1	Rattlesnake Hills	245	Rotary	Drilling
Walla Walla Oil & Gas	No. 1	Rattlesnake Hills	785	Standard	Drilling
Walla Walla Oil & Gas	No. 2	Rattlesnake Hills	468	Standard	Drilling
Denny Oil Co.	No. 1	Wapato	204	Star	Drilling
United Oil Co.	No. 3	Manitou	963	Standard	Drilling
Indian Foot Oil Co.	No. 1	Chewelah	....	Standard	Spudded-in

In addition to these enterprises destined to prove the possibilities of Washington as an oil producing state, another newly formed company, the Pacific Oil Co. has leased 640 acres located in the Quillayute Prairie district on the Olympic Peninsula. It will take over various holdings of the Quillayute Oil and Gas Co., organized by A. A. Collins, of Seattle. Capitalized for $50,000 the new company is a closed corporation having no stock for sale.

A study of the many oil seeps found in Western Washington indicate the oil has a paraffin base and according to an analysis made by the U.S.G.S. laboratory, the oil is reported to have characteristics similar to those of Pennsylvania crude.

Should Delay Drilling to Deeper Sands Until Oil Prices Are Higher

TULSA, May 30

THE cost of securing crude production from the depths to which wells are being drilled today necessitates higher prices for that crude and also for all petroleum products, E. B. Reeser, president of the American Petroleum Institute, told the Mid-Continent district meeting of the institute division of production here today.

Present production has been secured largely by the oil companies through funds secured by additional financing, rather than through earnings, Mr. Reeser told the production engineers present, and the use of this additional money has served to weaken the general price structure of the industry.

Mr. Reeser urged the engineers to take a more active part in the programs of their companies by pointing out to their executives the impossibility of producing oil profitably at present prices at depths to which drilling is carried on today. He also urged that they take a stand against increasing refining capacity or even marketing facilities of the industry.

Holding up on the drilling of new wells, and stricter adherence to the program of voluntary proration of production in flush fields is necessary as a means for temporary relief from overproduction, until the new doctrine of unit operation is generally adopted.

Mr. Reeser's address follows:

A pessimist should never be allowed to run at large. He is oftentimes a dangerous citizen and I hesitate to take a position which would put me in the class of those who look through dark glasses. Nevertheless, it is important that proper consideration be given to well known conditions and to authentic statistics. The petroleum industry is at the edge of a deep precipice and an irresistible force seems to be crowding it closer and closer.

The first picture to look at is painted on the theory that the old law of supply and demand must prevail. Petroleum engineers, following the geological and geophysical departments, are much in evidence. The discovery of high-pressure producing areas have followed each other in rapid succession. A perfect deluge of petroleum has been brought to the surface. The tremendous potential production now generally admitted throughout the several oil producing states will inevitably cause a collapse in the industry such as has never before been known. In Kansas, Oklahoma, Texas and California, a number of pools are restricted to 25 per cent or less of their potential yield.

Drilling should be stopped but under the highly competitive conditions, it is cheaper to drill a test well when the expiration date of a lease is approaching, than it is to take chances on securing a renewal. Under the method of a few years ago it was customary to direct the land department to secure a renewal on acreage about to expire; and the instructions were carried out without much effort or expense. The activities of the modern royalty company have changed this condition so that today companies find it so difficult to arrange for a renewal that they prefer the drilling of a well for the purpose of validating or, if unproductive, of surrendering the acreage. Large and small companies are following this practice.

In addition to the great potention production and to the extensive drilling program, stocks of crude and refined products are reaching new peaks each day. It is fair to assume that from the thousands of wells now drilling, or contemplated, new additional producing areas will be discovered. The burden is becoming unbearable and it is unreasonable to expect that prices can be maintained.

Millions and millions of dollars of petroleum securities now in the hands of thousands of investors throughout the United States will depreciate to a great extent. Fear of loss because of the conditions referred to, will cause investors to unload their securities, and this in turn will create liquidation in every other field of investment.

Dr. R. C. Beckstrom, professor of petroleum engineering, University of Tulsa, who will leave early in June for a year's stay in Russia as consultant to the Azneft Oil Trust, Baku

Individual producers and small companies owning hundreds of thousands of wells throughout the United States, which have been operated on a very narrow margin of profit, will be unable to stand a slashing of prices and they will, therefore, be forced to sell their properties to stronger units at prices which usually accompany distressed conditions.

After the orgy of overproduction has run its course, the petroleum industry will pass through a period of readjustment and out of the chaotic conditions, will emerge a stabilized industry owned and controlled by a few major interests.

The picture I have attempted to present to you is one that, in my opinion, can easily happen and the only thing to prevent it from happening will be the continuation of a rigid curtailment policy through cooperation.

The other picture, about which I prefer to talk, may be seen through the clear glasses of an optimist. We see a basic industry of this great nation grow by leaps and bounds to meet the demand of a hundred million people riding in automobiles to their work, as well as to their play; and meet the demands of millions of trucks carrying heavy burdens previously carried by steam railways.

America has been built on an agricultural foundation. The farmers must be prosperous and happy in order to make the nation prosperous and happy. As a result of this requisite, the millions of farmers scattered throughout the nation are being connected with hard surface roads. Their land must be turned over through the use of economical tractors. In fact, their everyday lives depend on the uses to which they can put internal combustion engines.

All these outlets, together with airplanes, motor boats, busses and many other uses require a tremendous supply of petroleum products. Notwithstanding the depression now prevailing, consumption of gasoline for the first quarter of this year is far in excess of the same period last year. Fortunately for the industry and nation, the petroleum engineer has developed devices and made it possible to continue an adequate supply of petroleum for an indefinite period. He has made it possible to drill to depths

which a few years ago were regarded as a barrier to future expansion. The industry recognized the necessity of an assured supply. Engineers have eliminated every question of doubt as to the ability to provide adequately and at reasonable cost to the consumer.

It is true that the volume of petroleum products above the ground has reached a staggering figure. Based on demand, however, the supply is growing less and less. For instance, gasoline stocks are considered very alarming—and indeed they should be reduced by many millions of barrels in order to be on a proper and economical basis—and yet, based on the number of days' supply on hand, in January, 1927, the stocks in the United States were equal to 56 days' supply, as compared to 42 days' supply at the end of January of this year. Engineering skill has made our refineries so efficient and the movement of tank cars has become so rapid that it is no longer necessary or desirable to carry large gasoline stocks.

It is extremely difficult to comprehend the tremendous volume of business now being done in the petroleum industry. Figures thought of a few years ago are of no use today. New producing areas will be necessary from time to time in order to meet the tremendous demand of more than two and one-half million barrels of domestic crude per day.

The efforts to meet these great demands of the future will require constant search and activity on the part of geologists and petroleum engineers.

Which of the two pictures is the one you gentlemen prefer and what are you contributing toward the maintenance of the gallery in which your favorite picture may be displayed?

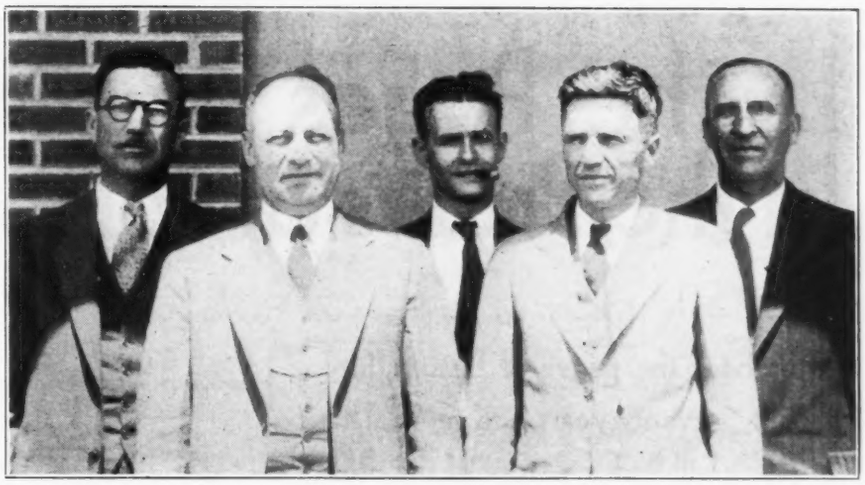
It may be your idea that is the sole duty of the executives to determine the policy of the company. May I suggest that the policy of the executive will usually be found in accord with the ideas of his organization.

Are you thinking of low cost based on volume output, or are you giving proper consideration to a condition which will result in remunerative prices?

The depths to which engineers now propose to drill, positively demand higher prices for petroleum products.

The present excessive production has been largely brought about through the use of additional funds secured through the sale of securities. The industry cannot continue indefinitely to secure new money and the public must learn sooner or later that such a policy is unsound.

Bankers should begin to realize that a proper charge for depletion and depreciation should be ample to cover usual or necessary expansion and that, generally speaking, large sums of additional money expended by companies will result in a weakening of the present structure. It will certainly be admitted that no additional filling stations are needed to properly supply the public, and I believe it will be admitted that we do not need additional refineries. It is the duty of engineers in the industry to do everything they can to stop further expenditures in the directions suggested.



All are active or former Bureau of Mines men. Left to right, Clifton R. Swarts, Pure Oil Co., Tulsa; Harry H. Hill, Standard Oil Co. of New Jersey, New York; C. E. Reistle, Jr., Bureau of Mines, Bartlesville; H. B. Hill, Bureau of Mines, Dallas and Ben F. Lindsly, Bureau of Mines, Bartlesville

I believe it is the duty of the petroleum engineers to advise the executives that it is impossible to produce oil from 6000 to 7000 or 8000 feet in depth at the present price for petroleum.

Very large wells are of course an exception, but large wells usually require the drilling of so many additional wells that the total cost of development will exceed the total recovery value on present crude prices.

It is predicted by competent engineers that the great Oklahoma City field will not produce a sufficient volume on present prices to cover all expenditures. This statement may be questioned by those who are equally as well informed. It will, in any event, be admitted that the result will not be commensurate with the risks taken. Competitive conditions in the industry are responsible for the tremendous amount of unnecessary drilling now going on at Oklahoma City and in nearly every new field.

The voluntary cooperative curtailment movement is the factor which will decide which of the two pictures presented will be on view. The attitude of the rank and file in the field will contribute greatly to the success of the program.

The success of the conservation movement has exceeded the hopes of many in the industry. A recent editorial in a prominent financial journal of the East, in discussing the overproduction now prevailing in nearly all the industries said: "Few industries have a potential overproduction equal to that of petroleum, and none has done a better job in bringing output into line with demand. Producers of other commodities may well study the intelligent stabilized methods today employed by the petroleum producer."

Consumption of gasoline is showing a healthy increase—in fact it is exceeding all estimates. There is great danger that producers will use the increased volume of sales as a basis for justifying an increased production of crude. Refiners have upset this theory by increasing the average yield of gasoline. Less crude is therefore required this year than was needed last year and the demand will probably remain stationary for two or more years.

The Federal Oil Conservation Board recently appointed an economics committee to study the situation and advise as to the requirements. You are familiar with the report. The board of directors of the Institute approved the report and recommended that the industry use it as the yardstick for regulating production.

Keep your slide rules busy, not alone in working out problems for developing greater production, but in keeping constantly in mind the necessity for maintaining a balance between production and consumption—it is the most vital problem before us. Engineering questions are more interesting, but today they are not so important as curtailment. The industry is indebted to the Federal Oil Conservation Board and to the commissions of the several states for the generous support they have given to the curtailment movement. The leaders in California are taking the lead in putting into effect a constructive program toward proper conservation.

Voluntary cooperation is the present need. Let us have it in larger doses than ever; and while this movement is temporarily saving the patient, spread the new doctrine of unit operation. After it has been adopted generally, our overproduction problem will be solved permanently.

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Properties of Materials Used as Admixtures in Rotary Mud

By C. P. Parsons*

(*Presented before American Petroleum Institute, Division of Production, Tulsa, May 23-24*)

SOME natural muds have been very effective in rotary drilling without treatment or use of admixtures and will continue to be so, but every operator has had occasions when deficiency in a natural mud was so obviously bothersome that some treatment or admixture was necessary.

Utmost effectiveness in the use of admixtures and chemical reagents lies in the proper choice and proportioning of suitable materials to make up the difference in quality between the natural mud and what would be considered the ideal drilling fluid for conditions met in a well.

This immediately raises the question, "What is an ideal drilling fluid?"

At the present time, a final answer, specifically defined and capable of universal application, is difficult indeed but in order to assist individual interpretation and to help in definite mud problems, it will be attempted in this paper to present a number of pertinent facts about muds and admixtures.

Unless admixtures are thoroughly understood and proportioned properly, they very often do the opposite to what is intended or they create some other deficiency. For instance, with a natural mud that lacks colloidal quality, if it is excessively treated with an admixture that relies on the water content of the fluid for its action, there is a possibility that the weight might be lowered excessively; and if the fluid is treated to increase colloidal quality by the use of a reagent that relies on chemical reaction with the basic minerals in the natural mud, the use of too much, might kill what colloidal quality the natural mud may have.

If we consider the use of admixtures only as an attempt to improve a mud just beyond the point where its deficiency is obviously bothersome, then it is not necessary to think seriously of an ideal fluid. The practical value of such thought would be to define a fluid that would not only eliminate the obvious conditions, but would assist in many other ways to make faster and straighter hole, a fluid that will be easier on pumps and other parts of the circulating system and will afford protection with a safety factor at all times.

Expensive blow-outs still occur, even in fields where operators apparently spare no expense to drill safely and conservatively; shut-downs are still numerous due to excessive wear on pumps; drill pipe is still occasionally stuck when mud settles out rapidly and many other expensive shut-downs occur in which mud deficiencies are closely related to the cause. In deep drilling areas, these expenses count up rapidly and it is primarily for this deep drilling reason that considerable interest has recently been revived in rotary mud.

It has been reported that mud was used with rotary equipment for drilling water wells in France 60 years ago. Since that time, there have been several periods like the present, in which unusual interest in mud fluids was aroused. Each period is reflected in the writings of the time and has contributed some practical and useful information on the subject.

Some Functions of an Ideal Drilling Fluid

The following is an attempt to describe some functions, besides the usual ones, that may be expected of an ideal rotary drilling fluid:

For drilling in areas of normal pressure, an ideal rotary drilling fluid is one that will have sufficient viscosity and colloidal quality which, when combined with the force of velocity, will immediately carry all cuttings away from the bit up to the surface at the same velocity as the mud stream itself.

That is free from any abrasive content when it enters the pump section.

That will not settle more than 2 per cent in 24 hours.

That will, upon the stopping of any mechanical agitation or disturbance when withdrawing the drill stem, tend to gel sufficiently to hold all the cuttings in the same place as they were when circulation was stopped, then when again disturbed by running the drill stem, it will return to its original fluid state, having prevented the cuttings from settling when the drill stem is out of the hole.

That will be white in color, so that the amount of contamination will be easily indicated.

That will be non-corrosive.

That will have a very low freezing point, so that it will not freeze in its position behind the casing above the cement in a producing well, if the expansion of gas from high reservoir pressure to low delivery pressures causes a drop in temperature sufficient to freeze and expand the fluid behind the casing and endanger the casing.

That will not lose any of its colloidal quality when it comes in contact with briny solutions.

To try to obtain all of the above qualities and the other more obvious ones, might seem like chasing the moon, but a search along those lines has revealed that though no natural clay has been found to fill all of the above requirements, there are scattered materials that could be produced very cheaply and there is sufficient scattered knowledge of chemical and physical treatments that when gathered together could produce an inexpensive processed drilling fluid to meet most, if not all, of the above.

In real deep drilling of the future, it is not unreasonable to assume that these loose ends will have long since been gathered and a hole will be started and finished with an inexpensive processed drilling fluid rather than with a deficient natural mud. There will be automatic devices for instantaneously and continuously recording weight, viscosity and other important factors.

However, at this stage of the game, natural drilling mud is either good or bad and the practice is to eliminate obvious deficiencies either by simple physical treatments such as screening and aerating or by treatment with an admixture or some chemical reagent.

Admixtures and reagents at present have three principal uses: First, as a mud body; Second, as a colloidal material; Third, as a weighing material. Other uses are as a gas liberator and as a lubricant. They will be discussed in their turn.

Rotary Mud Bodies

An ideal mud body admixture is one that will not require more than three times its weight in water to make a ten pound fluid, and which will meet all the conditions already mentioned in this paper.

Very often, a well might produce a good mud, while drilling, but is unable to produce it in sufficient quantities. Mud must be hauled or pumped

*Halliburton Oil Well Cementing Co., Duncan, Okla.

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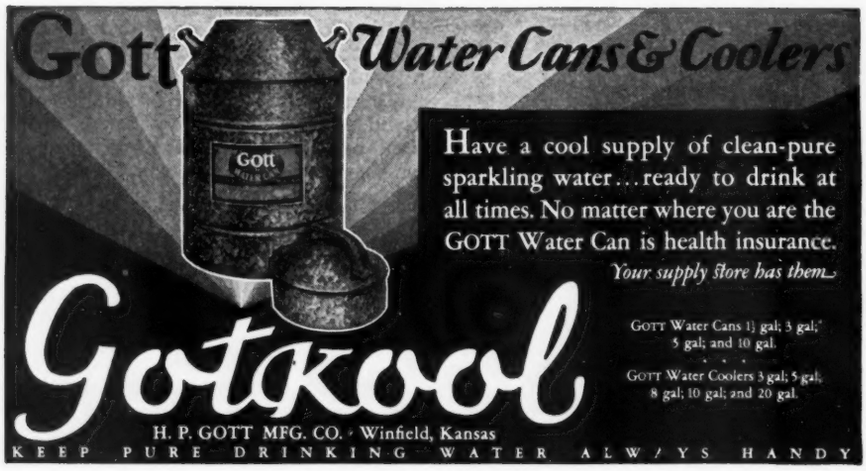
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from some other source or an inexpensive processed mud body may be used.

Rotary mud bodies are usually of some form of clay. Most clays are composed chiefly of silica and alumina. Physically, most clays are soft and unconsolidated and are made up of very fine grains, although some varieties are quite hard. Most clays are plastic when mixed with water. Most flinty clays and hard kaolins have little or no plasticity. In color, clays vary from white through yellow, brown and red to black, depending on the impurities present. Yellow and red clays usually owe their color to iron compounds; brown and black usually to organic or carbonaceous material. Most clays contain quartz sand and sometimes mica.

A survey of many natural clays revealed very few that are really desirable in their natural form, though pulverized for rotary drilling fluid bodies. However, inexpensive clays have been found that, when in proper combination, give evidence of making generous approach to the ideal. Experimentation is now being carried on.

Quite often a drilling well does not begin to make natural mud until considerable hole is made. In a certain gas field in the Mid-Continent, the first 700 feet of formations are sands. It takes several days to "soak" the pits with water and unless mud is hauled or piped, drilling proceeds with considerable difficulty because the hole consumes much water. The difficulty with the mud hauled or piped from pits at completed wells in this field, is that the mud is very high in sand content. Drilling progress under such conditions, would benefit considerably from the availability of a processed mud body, the price of which being low and the advantages high, making hauling or piping poor mud uninteresting.

Until the time such a processed mud body appears on the market, there are some good natural clays available. One of them is a reddish clay found in West Texas. This clay is high in colloidal quality, has proper weight for normal pressures, is low in abrasive content, running between 2 and 5 per cent in a few places and considerably higher in others. Its viscosity is such that if thickened considerably to make a heavy mud, it would not flow easily or drop cuttings readily.

When it is desired to increase the weight of this mud an admixture could be added to increase the weight without increasing the viscosity, as described later. In some places this clay has a shallow overburden and is lowest in sand content when taken from a level part of the bed. On the slopes the sand content increases.

A clay of this kind breaks down easily in water when ground to 64 mesh or finer and is rapidly mixed by means of a jet mixer. When in

Two wild wells blowing at once in the Oklahoma City field. In the foreground is the Prairie-Slick-Phillips, in 32-11-2W, which blew for nearly five days at an estimated rate of 15,000 barrels per day. The well in the background is the No. 7 Alice Bodine of the Indian Territory Illuminating Oil Co. This well was being reconditioned and did not blow many hours before being shut in. Note how the ground is flooded with the oil

coarse particles, steaming will accelerate mixing.

The following is a list and description of some clays and other minerals that are being tried out in various forms under various trade names:

Bauxite

A mineral which is an important ore of the metal aluminum; about 75 per cent of the production in the United States is for metallic aluminum. The largest producers are: Arkansas, Georgia and Alabama. Bauxite is a non-crystalline, earthy mineral, massive or in grains. Its color is white, gray, yellow or red. It derives its name from Baux, France. American bauxite has usually a round, pebble-like structure, and the commercial grades should have at least 52 per cent of silica and iron together. So-called bauxitic clay is a clay found in close contact with a bauxite stratum.

Diatomaceous Earth, or diatomite, is the name of a fine silica made up of the siliceous skeleton of tiny aquatic plants called diatoms. Most of the miscropic skeletons are hollow so that the material is very light in weight. It is amorphous, having no crystal structure. It has been used as a concrete admix.

Kaolin

A very pure form of aluminum silicate clay with no iron. It is a decomposition product of granite and feldspar, and its usual impurities are quartz sand, feldspar and mica, which can be washed out with water. Kaolin is usually white. It is insoluble in water. Kaolin usually occurs in clay-like masses, with a specific gravity of 2.6 to 2.63, and hardness of 2 to 2.5 as measured by the Moh scale.

Shale

A rock formed by mud or clay consolidated under pressure. It is fine-grained and has a laminated structure, and is largely composed of silica and alumina with various impurities, often colored by oxides of iron. Unlike sandstones, shales have little porosity. Slate is another form of shale.

Silica

A mineral which is the most common of all materials, and in the combined and uncombined states is estimated to form 60 per cent of the earth's crust. Many sands, clays and rocks are largely composed of silica. When pure, silica is colorless to white. It is either crystallized or amorphous. Crystallized silica in the form of quartz has a hardness of 7 on the Moh scale, and a specific gravity of 2.65.

Talc

A soft, friable mineral, oily and yielding to the touch. It is a hydrated magnesium silicate. The color is white, gray, green, brown or red. Talc has a hardness of 1, and a specific gravity of 2.8. It has a pearly to greasy luster. The mineral occurs in the Appalachian region from Vermont to Georgia. Talc does not mix readily with water.

Tripoli

Tripoli is the name of a whitish, finely granular, porous, siliceous rock probably derived from the weathering or alteration of chert or flint or the residue from the decay of siliceous limestones from which the calcium carbonate has been leached out. In some deposits Tripoli is soft enough to be crushed in the hand. It is sometimes called soft silica. It is not amorphous, as often considered, having a micro-crystalline structure. It mixes readily with water, but although ground fine, and if untreated, it lacks sufficient colloidal quality when mixed with water to make a drilling fluid.

In some of the above descriptions, mention was made of hardness of some of the materials. This hardness is, according to the Moh hardness scale for abrasives, measurements being taken by scratch comparison, talc being taken as 1, and the diamond as 10 on the scale.

Some Minerals On the Moh Scale of Hardness

Mineral	Hardness No.
Talc	1
Kaolin	2 to 2.5
Barite	3 to 3.5
Fluorite	4
Hematite	5.5 to 6.5
Crystallized	7
Silica	..
Topaz	8
Corundum	9
Diamond	10

Colloidal Admixtures and Reagents

The natural mud found in one particular high pressure area has insufficient weight, gas cuts easily and settles too quickly. At one well in that area, after drilling to 5000 feet and nearing production the rock bit became stuck in a limestone but circulation was free. Circulation was maintained for several days while attempts were made to free the bit but the pumps went down for several hours. While they were down, the mud settled sufficiently to prevent the pumps from getting circulation when ready to start. Thus, after spending $150,000 the job was jeopardized by deficiency in colloidal quality of the mud which easily could have been prevented by maintenance of proper colloidal quality by using an inexpensive colloidal admixture. Fortunately high pressure pumps were soon available and broke circulation.

There is plenty of reason for preventative treatment in such an area.

There are two ways of treating a mud body to increase its colloidal quality; first, by adding an admixture that

relies on combining with the water content of the mud fluid and second, by adding a chemical reagent that relies on chemical reaction with the basic minerals in the solid particles in the fluid.

As a colloidal admixture relying on the water content, a finely powdered high quality bentonite is being used successfully. Bentonite is a general name for one class of material resulting from the devitrification and partial decomposition of glassy volcanic ash. Deposits are found in many parts of the United States and Canada, but vary considerably in quality.

Bentonite from Wyoming has been found to be of suitable quality for use as a drilling fluid admixture. Its specific gravity is 2.4 and the Wyoming variety is white in color. It is composed of inert mineral ingredients and is capable of taking up several thousand per cent of water. It is pulverized very fine and treated for drilling fluid usage so that hydrating action takes place fairly quick.

When it takes up water, the particles swell to many times their original size and the mass becomes a gel. It is this gelling property that makes it useful as an admixture to add colloidal or suspending qualities to rotary mud.

As there is a tendency for groups of the particles to stick together and form bunches when mixing with water or adding to a drilling fluid, it is best mixed in a jet mixer.

The amount of bentonite to add to a mud that is deficient in colloidal quality is approximately an amount equal to .02 per cent of the total volume of the mud to be treated for every one per cent of settling in 24 hours.** That could be used as a starting basis and additional bentonite added if necessary. Field tests can be made by using a four ounce bottle, or 100 cubic centimeters graduate and measuring the settling in 24 hours.

Chemical reagents rely on chemical reaction with basic contents in natural mud to increase colloidal quality. They act to cause gelatinous precipitates which surround the particles of clay and cause cohesion. It has been found, however, that such treatment works better on the natural mud in some areas than in other areas, and a trial should be made with a small sample before using. Treated Sodium Aluminate is a base for a chemical reagent now on the market. It is used up to one part reagent to 600 parts of drilling mud, by volume.

In making any tests on colloidal quality, salt water should be added to the test specimen after the colloidal condition has been stabilized. Theoretically, clays are deflocculated by the addition of alkalies; and will tend to flocculate by the addition of acids. The use of an alkali in that sense, would act to aerate gas cut mud.

**H. F. Beardmore, "Field Control of Rotary Mud," "The Cementer," July 1929.

Weighing Admixtures

When a natural mud drilling fluid is thickened to get more weight simply by cutting down the percentage of water, the result is to increase the viscosity and percentage of solids in the fluid. With this procedure, the maximum additional weight is very limited and the tendency is to get a thicker fluid that might present difficulties in circulating and will not readily release cuttings and sand content. Also, it will be more liable to become gas cut.

Very often a thick mud looks like a heavy mud. There have been cases of muds so thick that they would hardly run out to the pit, but weighed very little more than water. If the natural mud is favorable and the desired increase in weight is within practical limits, it is possible to treat the solids in the fluid with an alkali to reduce the cohesion of particles and reduce the viscosity.

However, a more simple and more widely used method is to add a powdered weighing admixture of high specific gravity that will increase the weight of the fluid without increasing the viscosity.

Such a material should be finely ground and should have sufficient colloidal quality of its own not to drag on the colloidal quality of the mud body.

Iron oxide, hematite and barite have been the materials mostly used as weighing admixtures.

Iron oxide is a very high form of oxidation of iron and has a specific gravity of 4.9. When used as a weighing admixture it should be ground to about 300 mesh and should be treated to give it independent colloidal quality. Also, it should be free from abrasives.

Hematite is an iron ore containing about 70 per cent of iron. The color is usually various shades of reddish brown. Its specific gravity is 4.8 to 5.3 and hardness is 5.5 to 6.5.

Barite, a barium sulphate, has been used considerably more often than iron oxide and hematite and its general use as an admixture has become well known. However, the wide variation in quality of barite in different deposits is worth noting. The large deposits in the southwest are located in Georgia, Missouri and New Mexico and it occurs in crystals or massive. It may be colorless, white or light shades of blue, red and yellow and transparent to opaque. Its specific gravity is 4.5 and hardness is 3 to 3.5.

The most suitable barite for a mud admixture is of an unctious nature found in Missouri. When water ground the abrasive content is more readily released than when dry ground, it also must be treated to give it independent colloidal quality. Its lower abrasiveness and unctious nature are chiefly the reasons for its more widespread use than the other weighing materials.

Weighing mud is very important. This is being done at present by taking a sample of the mud in a gallon bucket and hanging it on a pair of scales. A forward step has been recently made and a device is now being tried out which is designed to give a continuous reading and record of the mud weight. The device consists of a hopper of known capacity, a discharge in the bottom and an overflow. It is connected to the ditch by a sampler line. The hopper is suspended to a dynamometer which operates an indicating gauge and a recording gauge.

The following table gives some facts about fluids of different weights:

Weights, Specific Gravities and Pressures of Various Fluids

Fluid	Weight per Gal. (lbs.)	Specific Gravity	Weight per Cu. Ft. (lbs.)	Weight per Cu. In. (lbs.)	Pressure in Lbs. per Sq. In. exerted by a col. 1 ft. high
Water, distilled	8.33	1.00	62.35	.039	.434
Water, sea	8.55	1.03	63.95	.037	.444
Petroleum (approx. average)	7.33	.88	55.00	.032	.384
Drilling Mud	9.00	1.08	67.32	.036	.467
Drilling Mud	10.00	1.20	74.80	.043	.520
Drilling Mud	11.00	1.32	82.28	.047	.571
Drilling Mud	12.00	1.44	89.76	.052	.623
Drilling Mud	13.00	1.56	97.24	.056	.675
Drilling Mud	14.00	1.68	104.72	.061	.727
Drilling Mud	15.00	1.80	112.20	.065	.779

New Equipment

Black, Sivalls & Bryson, Inc., Bartlesville, Okla., manufacturer of welded vessels and equipment for the oil industry, will build a factory in Oklahoma City on a site comprising 10 acres. Products to be manufactured at the new plant include many of those now being made at the old plant of the American Tank Co., Oklahoma City, a subsidiary. Those include oil and gas separators, welded oil field tanks, welded bulk storage and service station tanks, welded refinery equipment, piping, building caissons, condensor boxes, pressure drums and other welded products.

No rivets will be used in the building, but all members will be welded.

* * *

The Lincoln Electric Co., Cleveland, has moved its Baltimore, Md., distributor's office to 600 N. Calvert St. T. A. Canty is in charge. R. Rude is office manager and C. N. Hilbinger is sales engineer and service manager.

ADVERTISING PAGES REMOVED

Blending Value of Natural Gasoline

By S. S. Smith*

(Presented before Natural Gasoline Association of America, Tulsa, May 20-22)

REFINERS have lately come more and more to realize the importance of natural gasoline. The motoring public, educated by sales propoganda, asks for high test or volatile gasoline. Research provides large amounts of data proving the importance of proper volatility.

Recent work very definitely correlates the A.S.T.M. distillation with certain phases of motor performance. We now know that ease of starting and the ten per cent point of the A.S.T.M. are closely related. We know that acceleration depends on effective volatility which can be approximately predicted from the intermediate distillation points between 35 and 60 per cent. Dr. Brown tells us in his paper that the best index of the vapor lock characteristics of a motor fuel is its vapor pressure.

Throughout the last year, the Natural Gasoline Association has been engaged in research leading to new specifications. The committee in charge of this work is not yet ready to report its new specifications. This committee has, however, assembled a vast amount of data which has been made available to those of us on this program. Since it is the purpose of this paper to describe blending values of natural gasoline the first step must be to define the natural gasoline.

At the last Natural Gasoline Association convention, Oberfell and Alden of Phillips passed out an article describing the relationship existing between the 100 degree evaporated point and the 140 degree evaporated point of natural gasoline. After working with this original data for several months, it was evident that, while the central portion of the curves worked out fairly accurately, the extremities for low butane and pentane composition and high butane and pentane composition were incorrect.

This original data, as I understood it, was compiled from the results of a great number of analyses of natural gasoline made in the Phillips laboratory. In order to check this data we made a number of cuts of natural gasoline which corresponded with the natural proportions of normal hydrocarbons and their isomers as found in the average gasoline. Then using pentane-free bases from several widely separated plants, a number of synthetic blends were made, using pentane, butane and propane as the variables.

From the A.S.T.M. distillation of these synthetic samples we then constructed Chart No. 1. We have worked with this chart for six or eight months in our organization and have found, in actual practice, that analyses can be checked on individual components within two per cent with extreme regularity. With this chart then we can evaluate the percentage composition of butane and lighter from the 100 degree evaporated point and the composition of pentane from the 140 degree evaporated point.

No corrections for slope of the distillation curve are used with this chart, direct readings being made from the intersection of the 100 degree and 140 degree points which correspond to percentages of butane and lighter percentages of pentane in the sample.

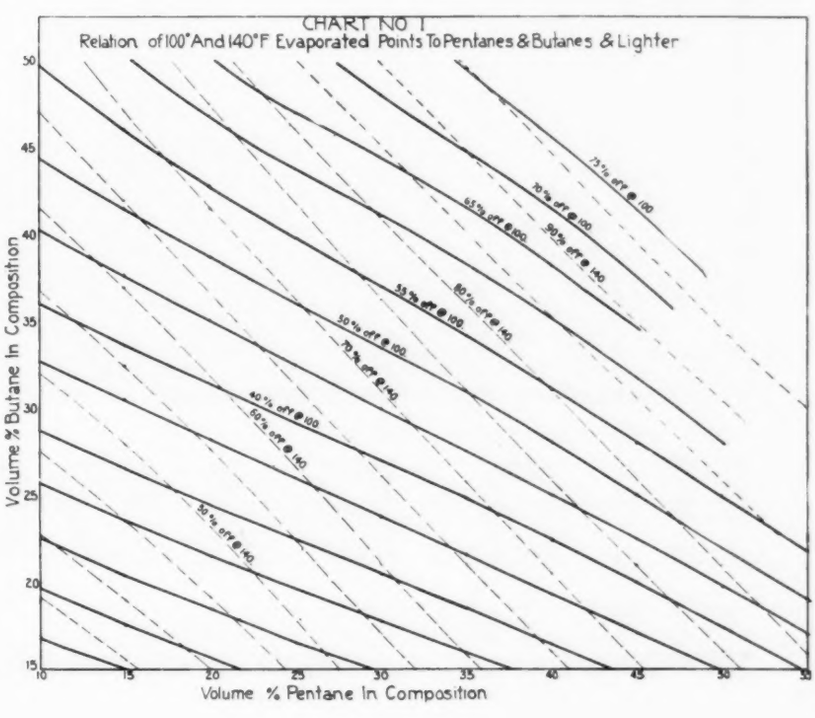
Chart No. 1 by itself gives us no index of the differentiation between propane and butane in natural gasoline. The mathematical relationship between the vapor pressure of propane and butane is quite evident. By calculation we find that substitution of one per cent of propane for one per cent of butane in the natural gasoline gives us an increase in vapor pressure of 1.8 pounds Reid. For purposes of ease of calculation, we use two pounds as the factor indicating composition (not substitution) of propane in any natural gasoline.

Now it will be seen that having determined the percentage pentane and the percentage butane and lighter from Chart No. 1 we can, by reference to Chart No. 2, compare these known quantities and the observed vapor pressure of the sample with the vapor pressure of a propane-free gasoline of same butane-pentane composition. The difference between the observed vapor pressure and Chart 2's vapor pressure in pounds Reid, divided by two, is then the per cent propane in the sample.

We have now determined close relationship between the distillation characteristics and the Reid vapor pressure which gives us an accurate analysis of the natural gasoline which we are going to use for blending. In view of the fact there are no determined specifications for the new grades, as yet, in this paper consideration must be given to certain gasolines which can be assumed to be representative of the grades of gasoline now manufactured. It is fair to assume that, regardless of what type of specification is adopted, such specification will not materially change the types of gasoline which are now being manufactured by the various companies, using modern plants.

The association's recent question-

*Shell Petroleum Corp.



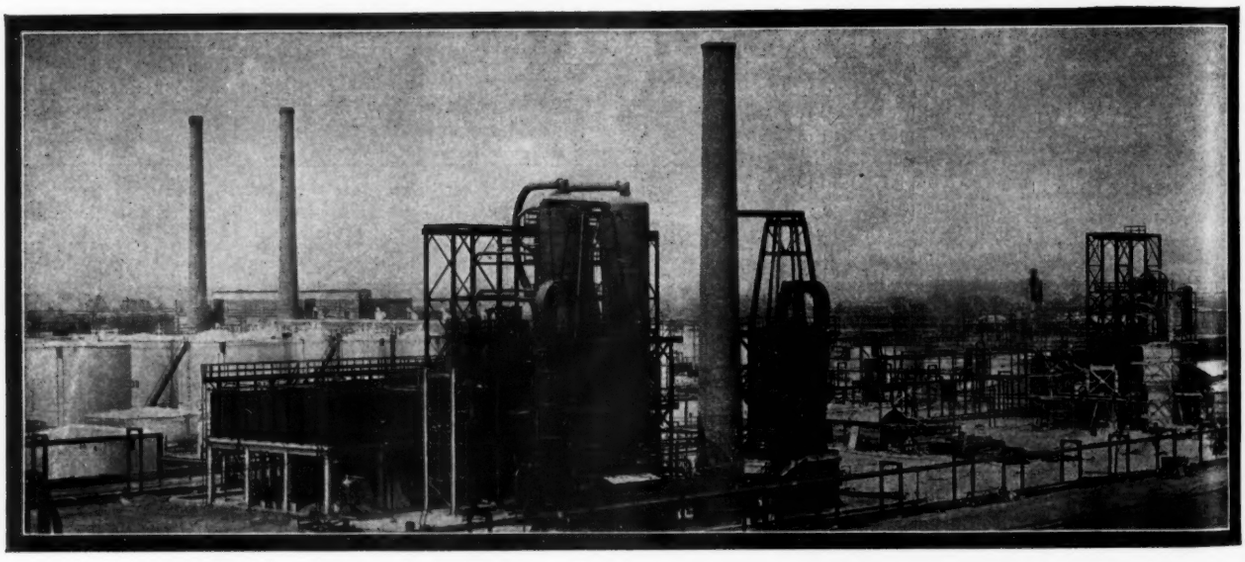
BUYING EQUIPMENT

THE development in refining technology has been so rapid that it is impracticable for the average refining organization to keep in as close touch with latest practice as an engineering concern handling many problems in many plants.

It is therefore often difficult, when buying refining units, for the purchaser to appraise accurately various propositions.

Under these conditions the essential points to note are the experience, reputation, and organization of the contractor.

Years are required to develop efficient engineering and mechanical designs, and no concern without extended experience can expect to furnish units measuring up to modern standards of construction and performance.



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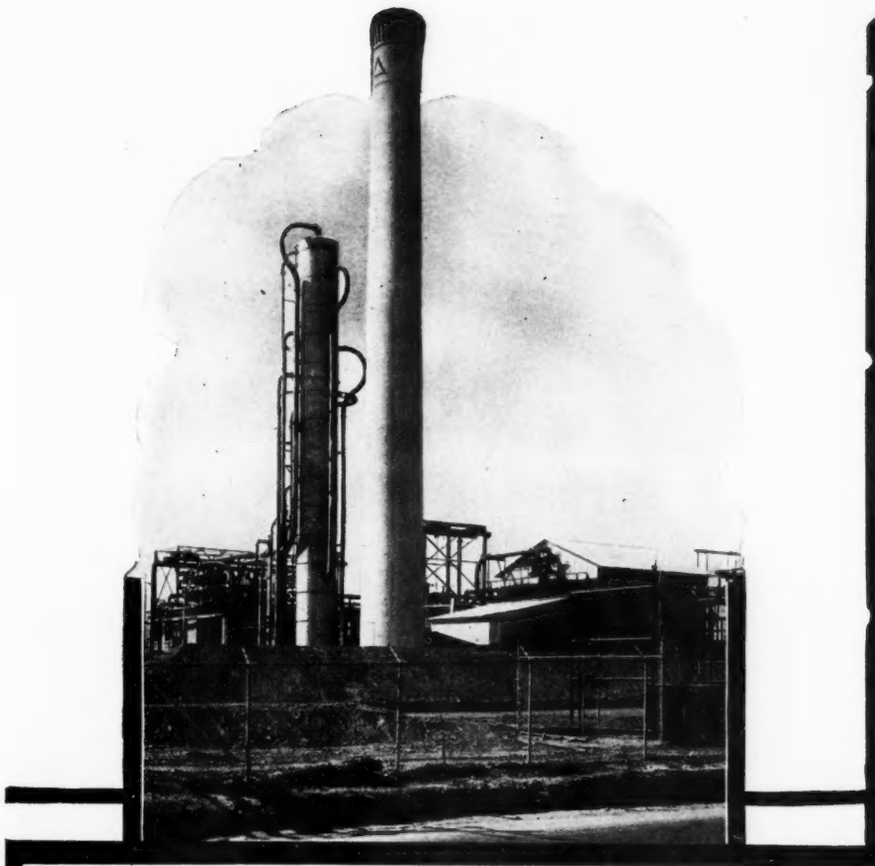

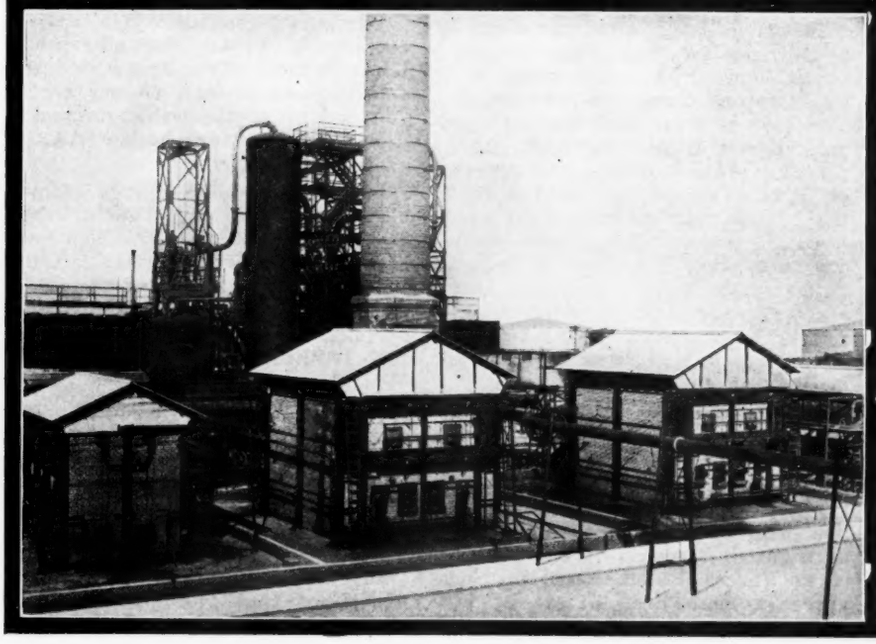

The following Companies are some of those who have purchased BADGER Equipment:

The Texas Company

Tide Water Oil Co.

Sinclair Refining Co.

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Emlenton Refining Co.

Shell Petroleum Corp.

Phillips Petroleum Co.

Standard Oil Co. of N. J.

Empire Oil & Refining Co.

Texas Pacific Coal & Oil Co.

Associated Oil Co.

Pennzoil Company

Independent Refining Co.

Gulf Refining Co.

Tidal Refining Co.

Continental Oil Co.

Anglo-Mexican Petroleum Co. Ltd.

Cities Service Refining Co.

Barnsdall Corporation

Beacon Oil Company

Pierce Petroleum Corp.

Magnolia Petroleum Co. of Texas

New Orleans Refining Co.

Skelly Oil Co.

General Petroleum Corp.

Shell Oil Company

Freedom Oil Works Co.

Vacuum Oil Company

Richfield Oil Co.

Humble Oil & Refining Co.

SONS COMPANY

TULSA HOUSTON BOSTON

Treating

Reduction of sulfur in gasoline to prescribed limits is still a chief problem in light oil treating.

The increasing use of vapor phase cracking has brought the problem of gum removal into the refiner's foreground. These developments and progress in methods of decolorizing lube oils, and removal of wax, are being discussed in their various phases in National Petroleum News.

Here are 33 articles for your file reference that have been published on treating in the past two years' issues of this publication:

1930

Acid recovery plants—description of processes May 21, p. 72
Acid recovery plants—light and heavy sludges May 14, p. 66
Continuous treating and dispersion contactors March 12, p. 32-F
Treating light distillates; action of sulfuric acid and caustic soda March 5, p. 57

1929

Modern refining—science and practice Dec. 18, p. 69; Dec. 4, p. 85; Nov. 20, p. 69
Solving corrosion, gum, anti-knock, volatility problems Dec. 11, p. 34
Neutralization best method of combating corrosion Dec. 11, p. 36
Power costs, solvents, in low pour point oils Dec. 11, p. 79
Free sulfur greatest corrosive agent in cracking plants Dec. 11, p. 89
Gum in gasoline not indicated by color Dec. 11, p. 93
Inhibitors stabilize gasoline color and knock rating Dec. 4, p. 40
Methods to combat corrosion in pressure stills Dec. 4, p. 49
Degasification, etc., of pressure distillate Oct. 30, p. 60
Skimming, cracking, lube making from Ranger paraffin crude June 26, p. 80; June 19, p. 78; June 5, p. 73
De-salting, distillation, light cracking West Texas crude May 29, p. 65
Time a factor in sweetening sour gasoline May 22, p. 78
Treating sulfur out of West Texas gasoline May 15, p. 75
Sulfur compounds and corrosion problems Feb. 27, p. 72
How wash naphtha? With soap and water Feb. 20, p. 61
Hydrogen sulfide gas hazards in West Texas Feb. 20, p. 45
Muskegon gasoline high in sulfur Feb. 6, p. 65

1928

Anglo-Persian bars sulfuric acid as treating agent Dec. 19, p. 64
Many factors affect safe limit for gum in gasoline Dec. 19, p. 75
Sulfur in gasoline Dec. 12, p. 31
Sulfur dioxide process in treating lubes Nov. 14, p. 63
Corrosion in refineries; suggestions Oct. 3, p. 22
Leamon continuous treating process for cracked gasoline Aug. 22, p. 65
Dissolved sulfur gives uniform results July 18, p. 56
Method to determine hydrogen sulfide in distillates July 18, p. 63

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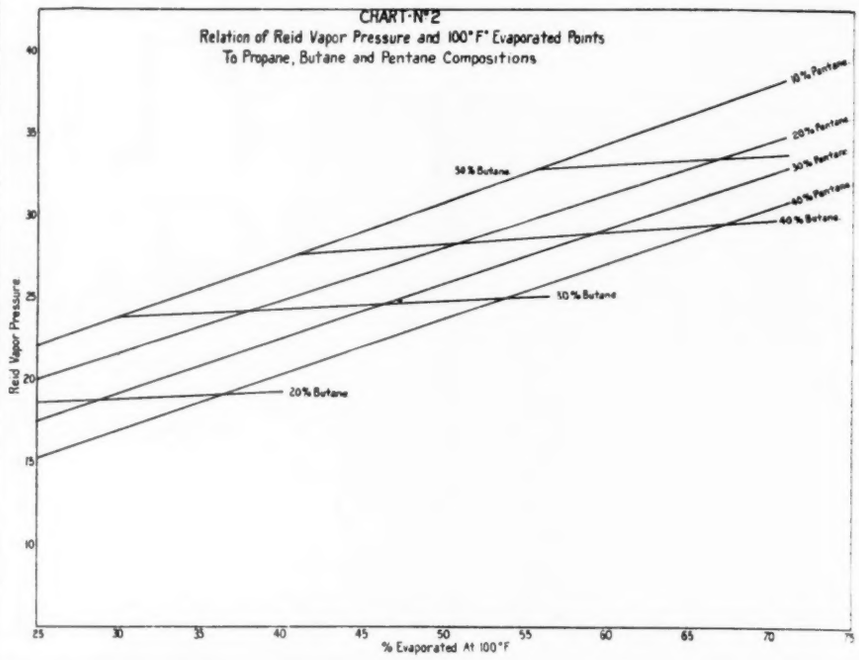


naire to all natural gasoline manufacturers has given us a vast array of figures covering the distillation ranges and the vapor pressures on gasoline as currently made. For a number of months, in our own organization, we have used the Reid vapor pressure and the 100 degree distillation point as indices of the degree of stabilization or rectification obtained from field rectifying units.

Chart No. 3A plotting per cents off at 100 against Reid vapor pressure shows four lines representing zero, one, two and three per cent propane. The base line for zero per cent propane passes roughly through the 28 per cent pentane point at 10 per cent of butane composition and through the 26 per cent pentane point at 40 per cent butane composition. A line drawn through 11½ pounds Reid as base point with the same slope, represents ¾ per cent propane, and/or 24 per cent pentane at 20 per cent butane composition, and 23 per cent pentane at 40 per cent butane.

This line we have used as indicating the vapor pressure of average commercially propane free gasoline and have instructed plant superintendents to keep their rectifier operations in line with practice which would produce gasolines which, at any per cent off at 100, would not exceed this base vapor pressure line. If we be permitted to assume, and the assumption is borne out by Natural Gasoline Association figures covering 1,250,000 gallons of gasoline production daily, that a base line of 10 pounds plus 1/3 per cent off at 100 degrees F. is representative of the average pentane content of well rectified propane-free gasoline, then a study of blends as made with gasoline following along this line should be instructive.

As most of you know, nearly any natural gasoline if rectified, becomes an "AA" gasoline unless the gravity is too high. Excessive gravity, of course, is caused by high butane-pentane composition. Study of the association's questionnaire shows that practically all "AA" gasolines fall along our 10 plus 1/3 the per cent off at 100 vapor pressure line between 40 and 55 per cent and if they are within the gravity limit group themselves pretty close to 50 per cent at 100.

Checks of gasoline which are well represented by our Seminole production and some of the Texas production fall between 50 and 65 per cent at 100 and group themselves around 60. These gasolines are outlaw AAs because of gravity.

Some of the older plants, compression plants and the like, or plants which have low oil circulation rates, give us low pentane-butane gasolines which fall between 25 and 40 per cent at 100 with vapor pressures corresponding and falling along our 10 plus 1/3 line if stabilized.

These three groups seem then to indicate a logical division of natural gasolines and, for the moment at least, let us consider blends of these types of gasoline and the effect of such blends on the finished 10 per cent point, vapor pressures, and the intermediate points.

In the first place, it must be understood that gasolines which fall along the 10 plus 1/3 the percentage off at 100 vapor pressure line must, of necessity, be well rectified natural gasoline. We may consider in general then that we are dealing with propane free gasolines when they fall on our 10 plus 1/3 line unless the pentane composition or ratio is abnormally low.

For the purpose of constructing blends of natural gasoline with naphtha we have chosen three naphthas which probably are comparable to average blending stock as used in

refineries. The constants and distillations on these naphthas are as follows:

	"H" Nap.	"M" Nap.	"L" Nap.
1	132	128	106
5	190	180	142
10	244	208	166
20	306	254	201
30	334	290	226
40	348	316	246
50	360	336	266
60	368	352	284
70	376	364	304
80	382	382	328
90	394	392	360
95	404	405	380
E.P.	424	420	398
Rec.	98	98	97
Res.	1.0	.8	1.0
V.P.	3.0	4.4	6.2
Reid	.....	.....	.....
Grav.	51.0	53.2	59.6

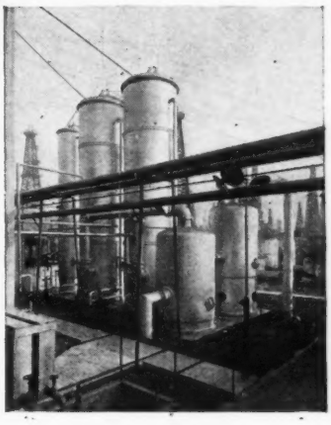
You will note from the distillation curve that L. Naphtha is an average type of blending stock for gasoline such as might frequently be found for use in blending with small percentages of natural for improved motor starting and acceleration. Chart No. 4 shows the distillation curve for our L naphtha and shows two naturals, A and B, both of which have 50 per cent pentane base, the A natural having 40 per cent butane and the B natural having 36 per cent butane and 4 per cent propane. The vapor pressure of the A natural is 29½ pounds and the B natural 34.6 pounds.

Curves for the resulting blends are plotted and their vapor pressures are listed. You will notice that 90 per cent of the L naphtha blended with 10 per cent of A natural, gives a vapor pressure of 9.47 pounds while 10 per cent of B natural in the same L naphtha gives us a vapor pressure of 10.2 pounds, an increase of nearly a pound vapor pressure between the two grades of natural. Please note that these two naturals have approximately the same percentage off at 100, the A natural having 57.5 per cent at 100 and the B natural 57.1 per cent off at 100.

This shows the effect of substitution of percentage propane for percentage butane in a natural gasoline and shows quite conclusively, particularly on the higher percentage blends, the bad effect of blending with high vapor pressure naturals which have approximately the same effect on the 10 per cent point while radically differing in their effects on the vapor pressures. The curves as plotted on Chart No. 4 are not sufficiently accurate to bring out the differences at the 10 per cent point and that phase of the discussion will be covered later.

The point to note in these particular blends is the effect on the vapor pressures of comparatively small percentages of propane, such as are actually found in unstabilized naturals. You will note that the A Natural is a typical natural having 91 recovery

Billions of Bubbles



A Campbell-built Plant at Signal Hill

GASOLINE PLANTS have PERSONALITY

STRANGE to speak of gasoline plants as having personality. But it stands to reason if a plant is built to meet specific conditions, to produce definite results, it will possess an individuality all its own. In the hands of skilled engineers it cannot be otherwise.

This explains why reputable engineers will not build gasoline plants on the batch principle.

The day your new gasoline plant produces its first graduate of the precious liquid should be as momentous as the time the doctor, emerging from that mysterious inner door, said, "It's a boy."

The fact that today more than 20% of California's entire natural gasoline output is produced by Campbell-built plants is rather significant. Each Campbell plant has an individuality all its own.

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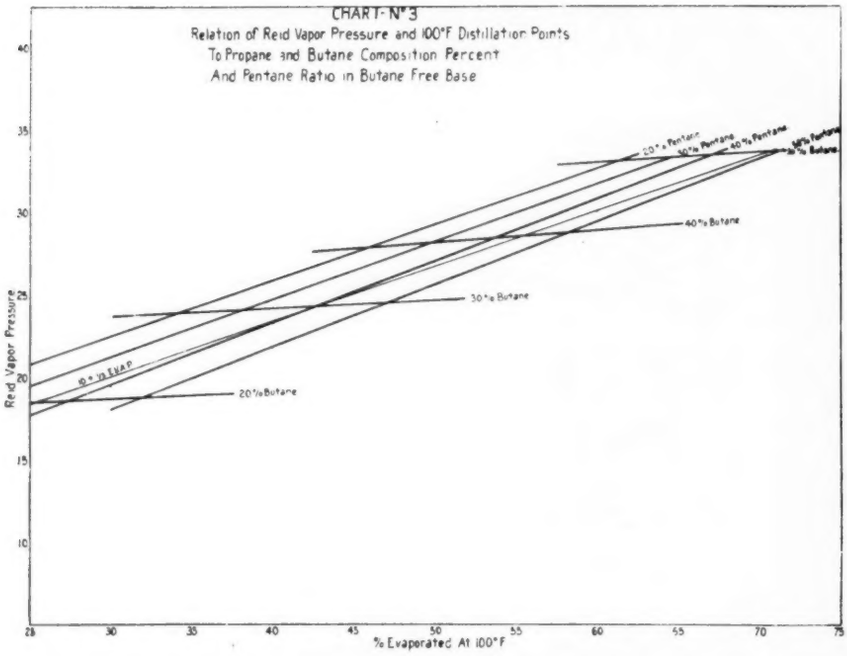


CHART-N°3
Relation of Reid Vapor Pressure and 100°F Distillation Points
To Propane and Butane Composition Percent
And Pentane Ratio in Butane Free Base
Reid Vapor Pressure
% Evaporated At 100°F
40% Butane
30% Butane
20% Butane

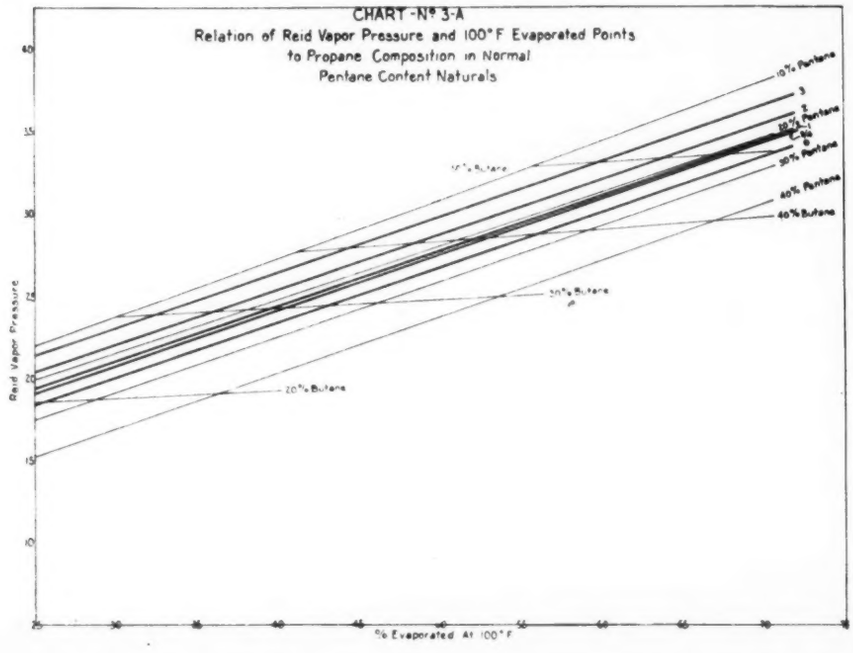
but 90 gravity, slightly above the limit for standard "AA" gasoline.

The B natural crowds the limit of grade "C" with 77 recovery and 90.8 gravity. However, the only actual difference between the two gasolines is the substitution of 4 per cent propane for 4 per cent of butane to make the B natural from the A natural. It will be noted that the A natural falls exactly on our 10 plus one-third the per cent at 100 while the B natural is 5 pounds above this vapor pressure line.

Now using the same L naphtha but another natural having 39 per cent at 100 and a vapor pressure of 32.2 pounds, we have plotted the 5, 10 and 15 per cent blends on Chart No. 5. It is immediately apparent that using such a natural the vapor pressure can be kept within limits up to approximately a 15 per cent blend while obtaining the 10 per cent effect which we desire. This J natural, also, falls exactly on our 10 plus 1/3 line.

You will note that this L naphtha is perhaps too light to consider a normal blending stock, since it requires little natural to give it satisfactory starting and motor performance. Dr. Brown's data probably will show that the 15 per cent blend of J natural with this L naphtha, due to its vapor pressure will give considerable trouble due to vapor lock at any atmospheric temperature above zero.

In general, this finished blend at 15 per cent will be considered too light a fuel for anything except rather extreme cold weather conditions in northern countries. A 5 per cent blend would probably give excellent performance in a motor in anything up to exceptionally hot weather conditions.



Now take the case of another naphtha having much higher boiling range. Quite obviously in using a heavy naphtha we can take greater liberty with our use of naturals in the blend. We can use larger percentages of natural and we can also use naturals of more widely differing characteristics. For the purpose of showing some of these relationships we have constructed Chart No. 5A which shows the distillation range of our H naphtha and the distillation ranges of six blends made using two naturals, F and G having the same percentage off at 100.

The F natural with 45 per cent off at 100, 75 per cent off at 140, Reid vapor pressure of 20.6 pounds, has a composition of 20 per cent butane and 60 per cent pentane in the butane-free base. The G natural, with 45 per cent at 100, 59 per cent at 140, 26.6 pounds Reid vapor pressure, has 40 per cent butane and 20 per cent pentane in the butane-free base. Six blends are plotted showing the effect of 10, 20 and 30 per cent of the F and G natural on the original naphtha.

The interesting thing about these blends is the fact that the low pentane content natural requires 30 per cent blend to reach the 10 per cent point which the high pentane content natural reaches with a 20 per cent blend and the vapor pressure of the two blends differ by only .4 pound. In other words, against a heavy naphtha a high pentane base stock will give the same effect at the 10 per cent point used in much smaller quantities while keeping the vapor pressures much lower.

If the blending considerations require that we influence the 35 per cent point by lowering its temperature, then quite obviously the high pentane natural which permits much larger percentage blending without unfavorably affecting the vapor pressure, is the gasoline which we should use.

It is particularly significant that 30 per cent blend of low pentane natural has 11.3 pounds vapor pressure while the 20 per cent blend of high pentane natural has a vapor pressure of 9.5 pounds while the 10 per cent points remain practically the same and, while there is almost 75 degrees difference between the 35 per cent point in favor of the high pentane base natural.

We have shown the effort of high propane content in the finished blend of our L naphtha. We have also shown the effect of high and low pentane content in a blend with our H or heavy naphtha. Chart No. 6 shows the distillation curves of our H naphtha, the distillation curves of our same A and B naturals and six blends. The A natural has 40 per cent butane, 50 per cent pentane base and vapor pressure of 2 + 2 pounds Reid. The

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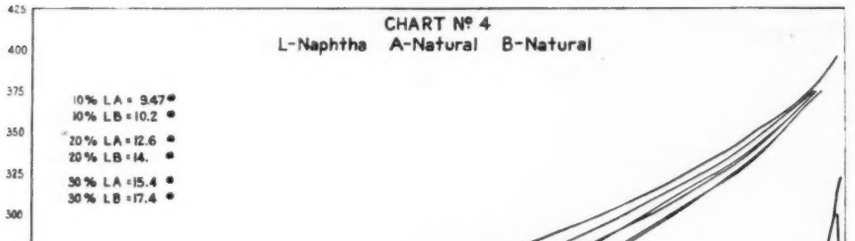


B natural has 4 per cent propane, 36 per cent butane and the same 50 per cent pentane base, with 34.6 pounds Reid vapor pressure. The 10 and 20 per cent blends of these two naturals with H naphtha show within close units the same 10 per cent points, 6.1 pounds versus 7.4 pounds vapor pressure for the 10 per cent blends and 8.8 pounds and 11.7 pounds vapor pressure for the 20 per cent blends.

It will be seen that against a heavy naphtha blending stock, it is possible to reach practical 10 per cent points using a high propane content gasoline particularly for winter fuels where high vapor pressures are not objectionable.

Now for a practical application against a fixed type of naphtha using two different types of casinghead to fit summer and winter driving conditions. For this purpose let us use the M naphtha which we described early in the paper. This naphtha, you will recall, has an initial of 128, an uncorrected 10 per cent point at 208 and a vapor pressure of 4.4 pounds. The naturals to be considered are first the K natural having 40 per cent butane and 60 per cent pentane in the butane-free base. Its characteristics are 62 per cent off at 100, 82 per cent at 140, 29.6 pounds Reid vapor pressure, and distillation loss of 8 per cent. This, you will notice, is a high volatile natural, falling just about on our 10 plus one-third vapor pressure line and having average "AA" characteristics except for high gravity.

Blending this gasoline with our naphtha to a 15 per cent blend gives us a corrected 10 per cent point of 120 degrees and a Reid vapor pressure of 11.2 pounds. Our Q natural has 30 per cent butane and 50 per cent pentane in the butane-free base. Its characteristics are 47 per cent at 100, 73.5 per cent at 140 and 24.2 pounds Reid vapor pressure. This gasoline, blended with our naphtha in a 10 per cent blend, gives us a corrected 10 per cent point of 146 degrees and a vapor pressure of 7.2 pounds. These two finished blends might, I believe, be considered excellent summer and winter fuels.

The blends considered so far, if accepted at their face value, show several things of interest:

First, high vapor pressure natural, whether due to reduced pentane content or increased propane content, will not permit sufficient percentage blend to give us conditions we frequently desire on heavy naphtha without running into trouble due to vapor pressure with consequent vapor lock in the motor fuel performance.

Second, high pentane-base stocks are useful in effecting the 35 per cent point and consequent motor performance, in acceleration and ease of warming up.

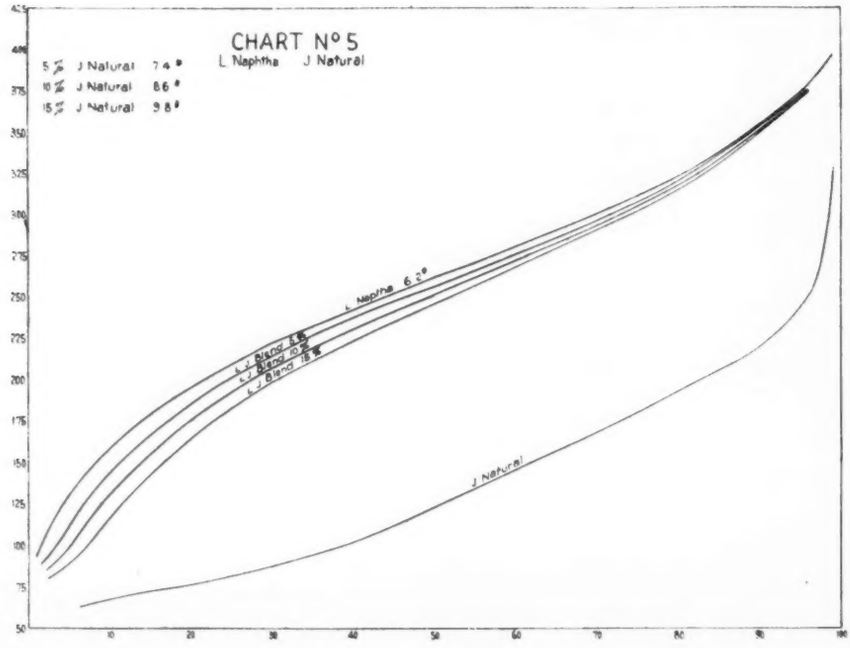
Third, it is useful to use a high volatile natural gasoline for winter fuel where rather high vapor pressure is not necessarily a detriment to the finished fuel.

Fourth, in blending to summer fuel, care should be exercised that the natural is a low vapor pressure and not too excessive in its volatility as expressed by the 100 F. point.

Admittedly, the few examples given do not prove the case. They are mentioned for the purpose of pointing out a few of the salient points by the use of exaggerated examples. These exaggerated examples may be said to over-emphasize the importance of pentane content in the finished blend. On the other hand they do show definite trends which are important to us, particularly, if we use natural in blending to close limits on our motor fuel. In other words, if our base stock, or naphthas, which we are going to blend, limit us to close control of the 10 per cent point and the vapor pressure, then the type of natural selected for such blending has an important bearing on whether or not the blending operations will be successful.

The Natural Gasoline Association research program laid out and carried through a series of blends of 15 per cent natural and 85 per cent fixed naphtha.

In connection with some of the statements already made in this paper, it is interesting to note, trend curves taken from the data compiled by the association. Chart No. 10, as made up by the Technical Committee, shows the definite 10 per cent evaporated temperature of the A.S.T.M. distillation and the vapor pressures in pounds Reid of finished blends of 15 per cent natural with a fixed naphtha



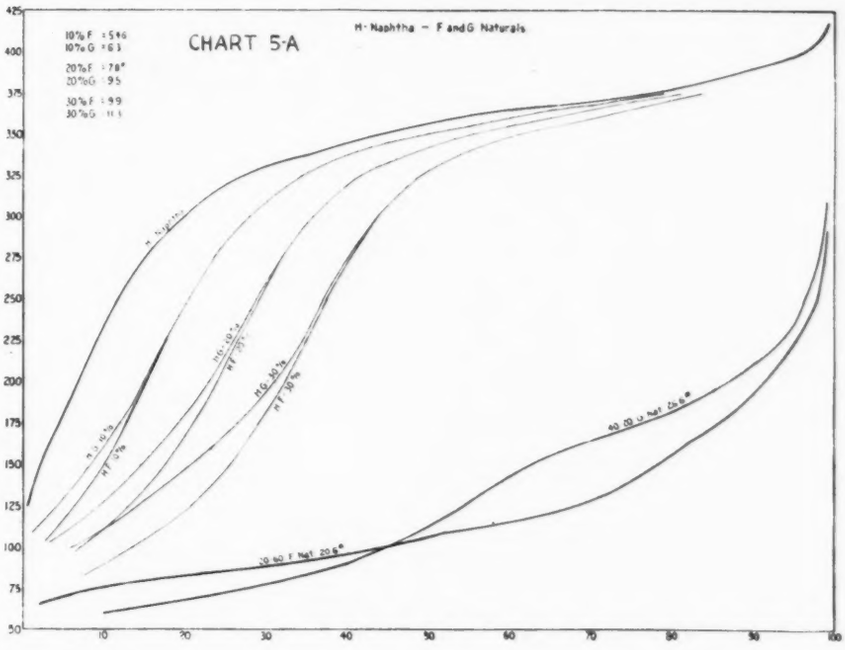
base. My chart does not show the colors representing the different pentane bases but that has already been covered.

From the data on Chart No. 10, we have made up Chart No. 11 which shows quite clearly the effect of decreasing pentane content with corresponding increasing butane content in the natural from which the blends are made. You will notice that the 10 per cent point lowers uniformly with an increase in vapor pressure as we increase butane and decrease pentane up to the point where we have 30 per cent butane in the natural. From 30 per cent upward it will be noted that practically the only change made in the finished blend is to increase the vapor pressure. This point was covered previously in our low pentane content natural blend with our M naphtha, but the single instance cited of course does not prove the case.

The exhaustive work done by the Technical Committee of the association, however, can be taken as conclusive and shows very distinctly the desirability of using high pentane base natural for summer blending requirements and the permissability of high butane stocks for winter blending.

As a guide in blending, we have found in correlating the blended products with the components of the blend that within very close limits the percentage evaporated at any temperature can be calculated from the percentage evaporated in the two components. For instance, a naphtha having 20 per cent evaporated at 200 degrees blended with a natural which has 85 per cent evaporated at 200 degrees permits us to calculate the per cent evaporated in the finished blend. Ten per cent of the natural will give us 8.5 per cent evaporated and 90 per cent of the naphtha will give us 18 per cent evaporated at 200 degrees F. The two added give us 26.5 per cent evaporated at 200 degrees.

In practice blends will be found to follow this rule with remarkable accuracy. In the same way, we can calculate in advance the vapor pressure of the finished blend by using the molecular percentage of the natural times its vapor pressure plus the molecular percentage of the naphtha, multiplied by its vapor pressure. Results of such calculations will be



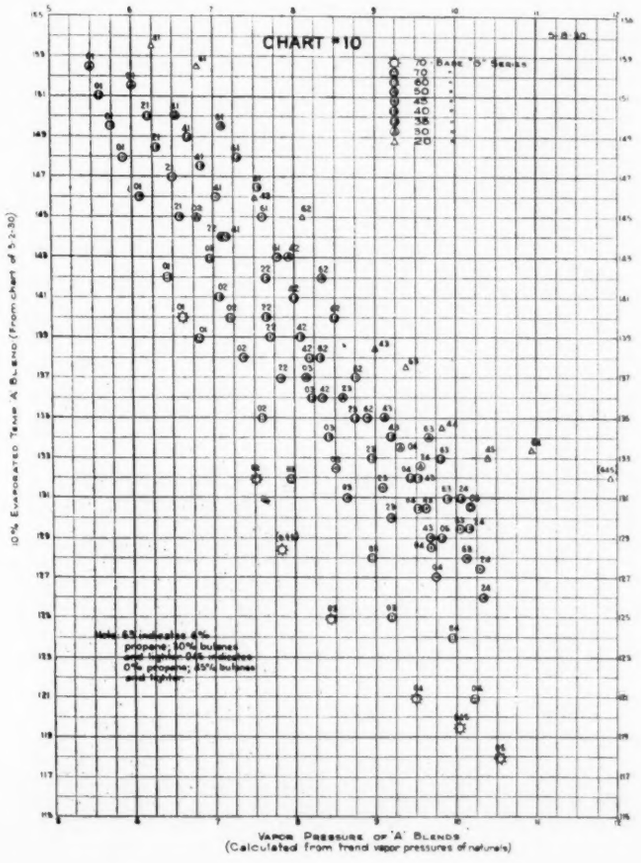


CHART 10
Base "B" Stocks
Note: 63 indicates 6% propane, 10% butanes and lighter; 065 indicates 0% propane; 65% butanes and lighter.
10% Evaporated Temp. "A" Blend (From chart of 5-2-30)
Vapor Pressure of "A" Blends (Calculated from trend vapor pressures of naturals)

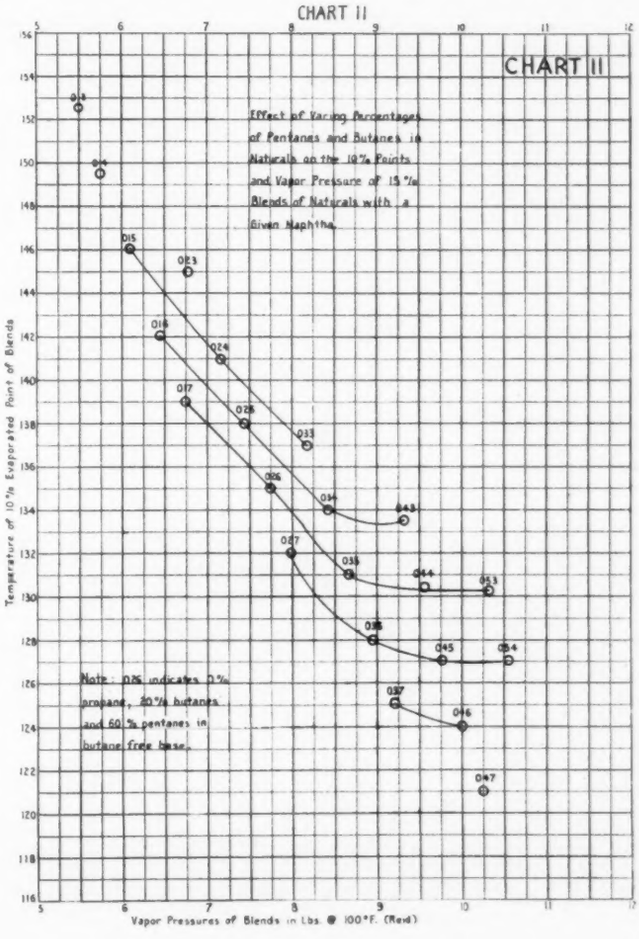
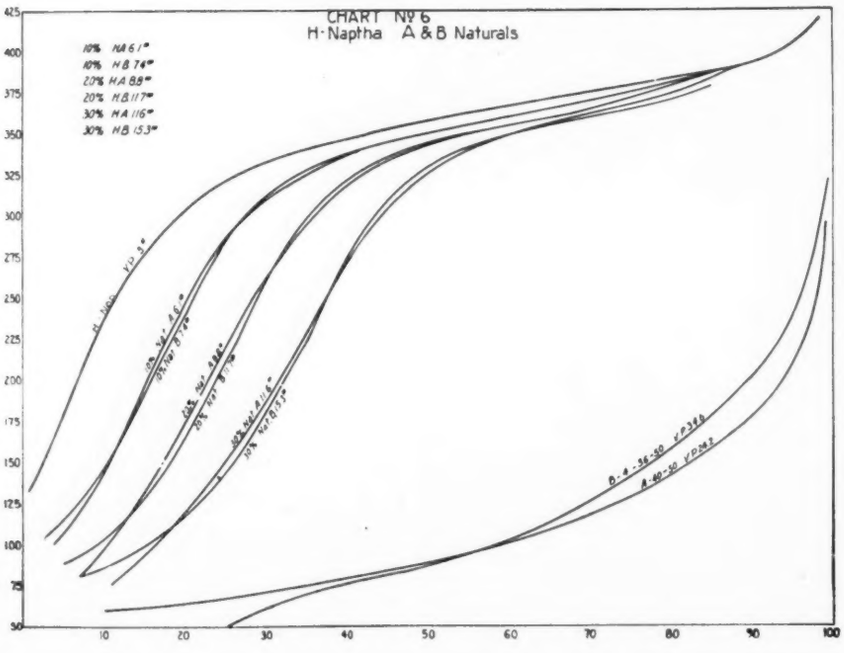


CHART II
Effect of Varying Percentages of Pentanes and Butanes in Naturals on the 10% Points and Vapor Pressure of 15 % Blends of Naturals with a Given Naphtha
Note: 025 indicates 0% propane, 20% butanes and 60 % pentanes in butane free base.
Temperature of 10% Evaporated Point of Blends
Vapor Pressures of Blends in Lbs. @ 100°F. (Reid)



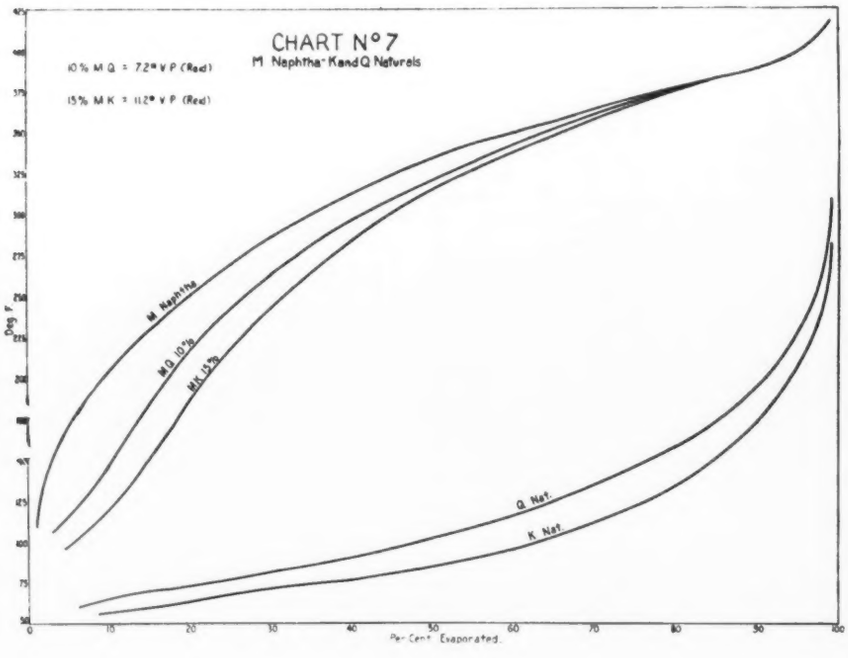
found to check actual practice closely within the error inherent in our Reid vapor pressure apparatus.

We can now sum up the situation as follows: Given the Reid vapor pressure and the percentage off at 100 on a natural which is to be used for blending, we can check this specication and find out whether or not the vapor pressure is properly in line with the percentage off at 100. If we find it to be so, we know that we have a natural which does not contain appreciable amounts of propane nor appreciably reduced amounts of pentane. If this is the case, we are safe in assuming that this natural can be used to blend to any type of specification we desire in a finished motor fuel, and the only criterion we need observe is that the per cent off at 100, or the volatility, is not excessive for the seasonal blending requirements.

After receipt of the natural and proper checking of its vapor pressure, per cent off at 100, and per cent off at 140, we can determine with considerable accuracy the percentage of components although such determination is not necessary for intelligent blending. The only necessities are the vapor pressure and the distillation curve, both of which can be used against the vapor pressure and distillation curves of our original naphtha to calculate the characteristics of our finished motor fuel.

If we are working to close specifications on a finished motor fuel, then we can calculate the points which are fixed in our specifications with considerable degree of accuracy, and the only necessary adjustment of the distillation curve on the synthetic blend as calculated may be to raise the slope of the front end of the distillation curve slightly.

These calculations have been used by several companies in the Mid-continent field for some time with entire success. I believe we are entirely safe in saying that it is possible, by these methods to prophesy within the limits of error of our check methods the actual distillation points all along the curve.



Foreign Opportunities

Reserved information may be obtained from the Bureau of Foreign and Domestic Commerce, Washington, and its district and cooperative offices by duly registered firms and individuals upon written request by opportunity number. The Bureau does not furnish credit ratings or assume responsibility as to the standing of foreign inquirers; the usual precautions should be taken in all cases, and where no references are offered it does not necessarily imply that satisfactory references could not be given. Correspondence may be in English unless otherwise stated.

44824.—**Asphalt for paint and varnish industry and cable makers,** Hamburg, Germany, agency.

44825.—**Mineral wax,** Tourcoing, France, agency.

44881.—**Asphalts,** San Juan, Porto Rico, purchase and agency.

44845.—**Cylinder and other mineral lubricating oils in barrels,** Hamburg, Germany, purchase.

44902.—**Rock asphalt,** Alexandria, Egypt, purchase and agency.

44907.—**Cylinder oils, red and pale engine oils,** Glasgow, Scotland, purchase.

45047.—**Bitumen and asphalt,** Florence, Italy, purchase.

45058.—**White medicinal oil,** Montreal, Canada, purchase and agency.

45059.—**Bitumen for road building,** Berlin, Germany, purchase.

45061.—**Bitumen, cable oil, and paraffin products,** Hanover, Germany, agency.

45165.—**Surfacing bitumen,** Budapest, Hungary, purchase.

45166.—**Petroleum and products,** Paris, France, purchase and agency.

44887.—**Lubricating and fuel oils,** Cordoba, Argentina, agency.

44894.—**Lubricating greases,** Stockholm, Sweden, agency.

44903.—**Benzine, gasoline, and lubricating oils,** Milan, Italy, agency.

44977.—**Gasoline and kerosene in cases and drums,** Montevideo, Uruguay, agency.

44978.—**Bitumen,** Riga, Latvia, agency.

45434.—**Pennsylvania oils for motor cars and airplanes,** Teplice-Sanov, Czechoslovakia, agency.

45436.—**Lubricating oils and greases,** Milan, Italy, purchase or agency.

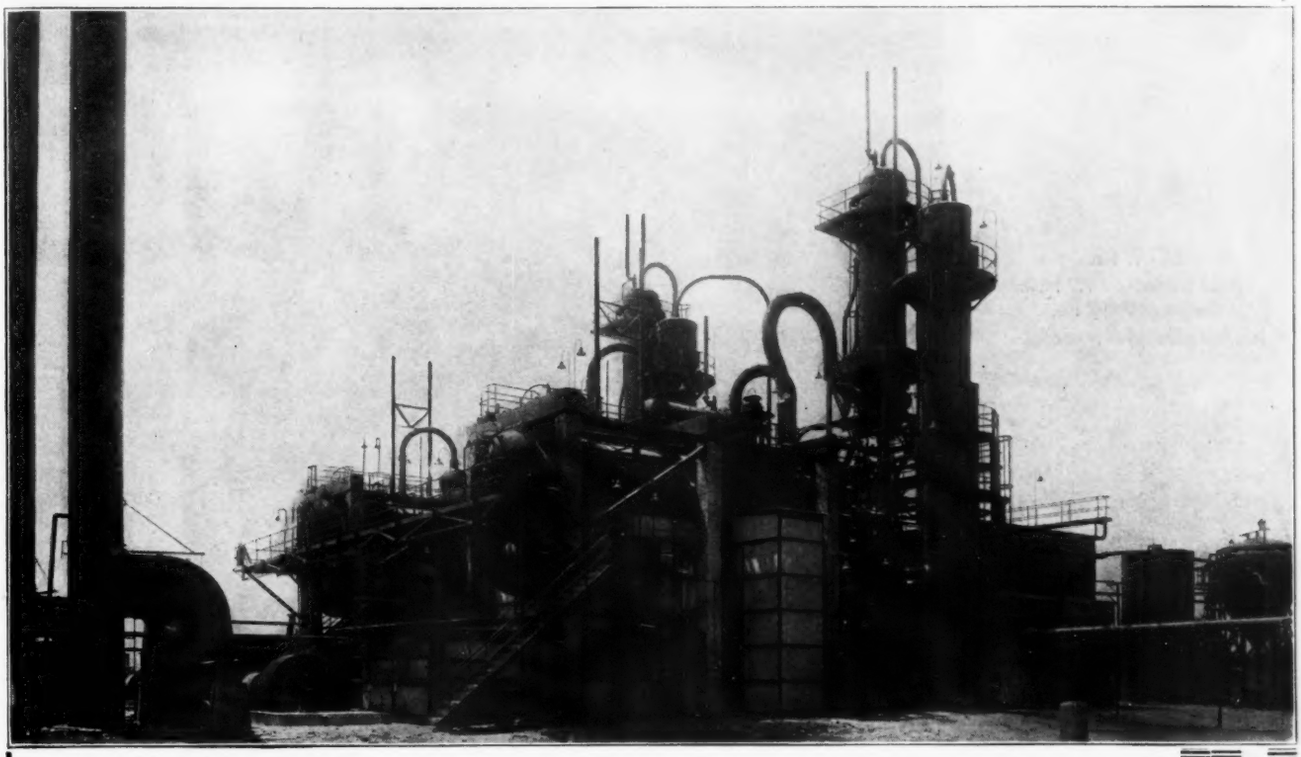
45560.—**Lubricating greases and bitumen,** Budapest, Hungary, purchases.

45599.—**Cup grease and automobile oils in three grades,** Bahrein, Persian Gulf, purchase and agency.

45715.—**Lubricating oils and greases,** Berlin, Germany, agency.

45632.—**Furnace, fuel and lubricating oils,** Bombay, India, agency.

JENKINS CRACKING PROCESS



Two Jenkins Units at the Rio Grande Oil Co., Vinvale, Calif.

No. 1 unit recently completed this very successful cycle on California residuum. The charging stock consisted of 24° A.P.I. gravity Santa Fe Springs residue and recycle stock produced by the unit.

ON STREAM, NOVEMBER 29, 1929
OFF STREAM, JANUARY 7, 1930
TIME ON STREAM, 929 HOURS

PRODUCTS	BARRELS	% THRUPUT	% ULTIMATE
Pressure Distillate*	22,653	25.7	62.9
Recycle	52,163	59.1	....
Fuel Oil	11,729	13.3	32.5
Gas and Loss	1,674	1.9	4.6
Total Charge	88,219	100.0	100.0

*78% of pressure distillate off at 410° F.

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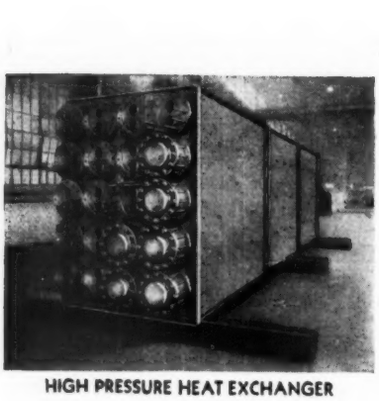
Have Your Equipment Built in Shops with Capacity

Many pieces of equipment such as the one illustrated above are built in our shops at the same time.



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CHESTER, PA.

Operating Results of Butane-Air Gas Plant in Small Indiana Town

By L. C. Heavner*

(*Presented before American Gas Association Conference, Cleveland, May 21-23*)

EARLY in 1929, the attention of the executives of our company was attracted to the use of butane gas mixed with air as a source of supply for commercial gas in small cities and towns. Inasmuch as there was very little definite knowledge available relative to costs of plants of this type and their operating expense, they felt that it would be advisable for our company to install one of these plants complete in some town of approximately 5000 inhabitants that heretofore had never been supplied with gas.

There were at this time just two butane plants, both operating in Indiana, and both being of the conversion type, i. e., the towns had previously been supplied with other gas. A survey of our territory was made and it was decided to install a plant in the town of North Manchester, Ind.

It was felt that by installing a new plant here, with new mains, services and meters, that after one or two years' operation, the company would have sufficient data to know whether or not it was warranted in applying for franchises, and installing similar plants, in many of the smaller towns located within the territory served by the company, and which are not now served with gas.

North Manchester is a town of approximately 3500 inhabitants, located in the center of the farming district and having within its corporate limits North Manchester College and several small industries; also, it is located about 16 miles from the end of one of our existing high pressure pipe lines, so that if this type of service should not prove successful or economical, the system could be connected with this transmission line and served with gas from another source.

After it had been definitely decided to locate the plant at North Manchester, specifications for a plant and distribution system of 120 thousand cubic feet per day capacity were worked out by the engineering department of the Utilities Service, Inc., in conjunction with the gas engineering department of the Midland United Co. and the Phillips Petroleum Co., and the final plans approved by all three.

All of this preliminary work took considerable thought and time; also, the delivery of some of the material was slow, and consequently the plant was not put into actual operation until the middle of December, 1929, which is rather unfortunate as regards this paper, as we do not feel that we can give operating data of much value at this time. It is probable that at a later date we will be in a better position to give more definite data based on actual operating expenses.

Plant

(1) A plot of ground consisting of 15,000 square feet, adjacent to the railroad and within the corporate limits of the city, was purchased, and a railroad siding installed.

(2) The plant proper consists of a brick building 24 feet x 20 feet, with tile roof, divided into two rooms; one room containing the generating apparatus, meters and compressors, and a smaller room, 7 feet 2 inches x 9 feet 4 inches, which houses all of the electrical control apparatus, gas testing apparatus, gas fired boiler for heating the building, and a water heater for furnishing hot water for vaporizing.

(3) A storage tank for butane, 40 feet long by 8 feet in diameter, having a capacity of 15,000 gallons.

(4) A high pressure gas storage tank built for 60 pounds pressure, 47 feet 6 inches long by 10 feet 3 inches in diameter, having a capacity of

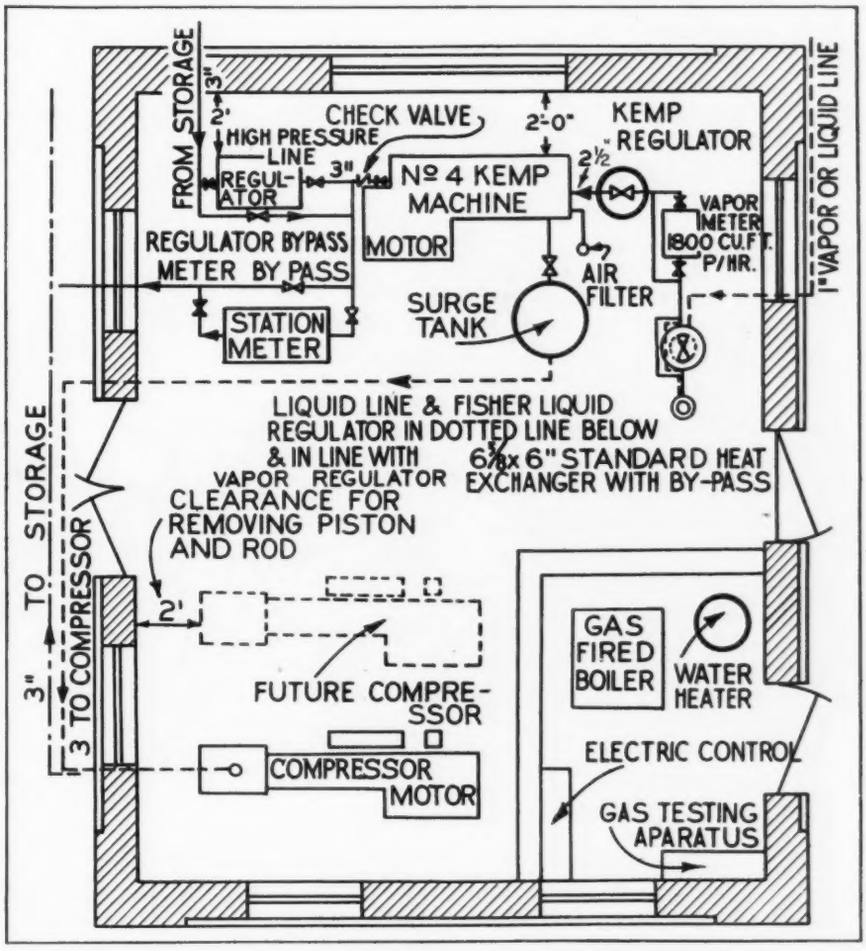


Fig. 1—Layout of North Manchester Butane-Air gas plant

*Utilities Service, Inc., Fort Wayne, Ind.

Fig. 2—View of plant showing pressure storage for liquid butane

18,000 cubic feet of gas from 50 to 5 pounds.

In laying out the buildings and tanks, allowances were made for future extensions as shown in Fig. 1.

PLANT COST

Land and Grading	$800.00
Railroad Siding	1,113.88
Building	3,420.00
Gas Generating Apparatus and Foundations	4,429.54
8 x 6" Compressor, Motor and foundations	895.80
2 Tanks, including Foundations	4,960.00
Heating System	450.00
Pipe and Fittings	1,350.00
Electric and Water Service	550.00
Labor	878.56
Miscellaneous	405.00
Total	$19,252.78

A butane-air gas plant for small town operation has quite a few advantages over the conventional gas plant; some of these advantages are:

1. Low initial investment costs.
2. Low over-head.
3. Low maintenance costs.
4. Low labor costs, as the plant is almost entirely automatic in operation and requires only one man part time.
5. Low distribution operating costs, as there are no gum-forming compounds, stoppages or condensation to take care of.
6. No purification necessary, as Butane contains only five grains of Organic Sulphur per 1000 cubic feet.
7. Non-asphyxiating; butane gas is also odorless, it being necessary to use a warning agent or stench to detect its presence—we are at present using ethyl mercaptan.

Some of the properties of butane are:

Vapor pressure at 70 Deg. F.	33 Lb. per Sq. In.
Temp. at which pressure is 0 lb. per sq. in.	15 Deg. F.
Specific Gravity of Liquid (water = 1)	.576
Initial Boiling Point	12 Deg. F.
Weight per Gal. of Liquid	4.8 Lbs.
Specific Gravity of Gas (air = 1)	1.95
Cu. Ft. of gas per Lb. of Liquid	6.7
Cu. Ft. of gas per Gallon of Liquid	32 Cu. Ft.
B.t.u.'s per Cu. Ft. of Gas	3200
B.t.u.'s per Gallon of Liquid	102,400

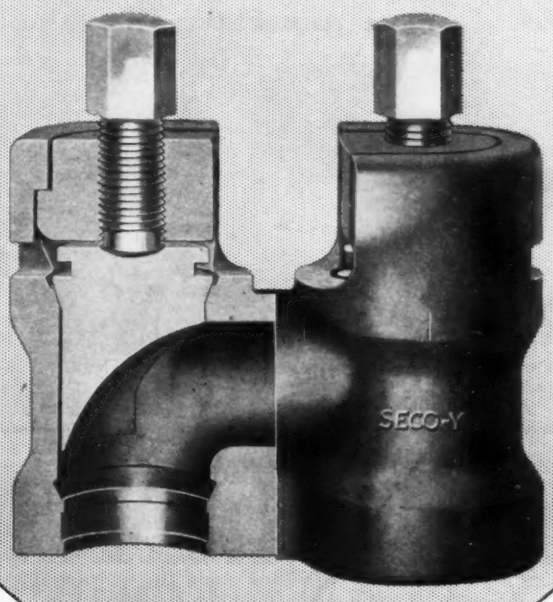
Operation

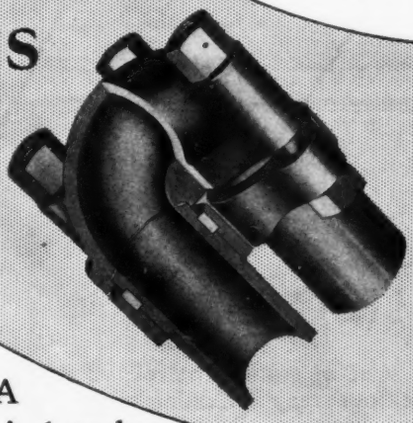
Butane is shipped, and received at the plant, as a liquid under approxi-

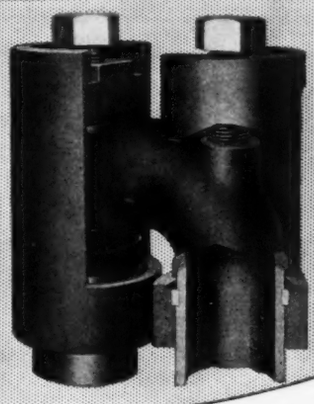
Fig. 3—Interior of plant showing manufacturing apparatus, governor and station meter

SECO RETURN BENDS

FURNISHED IN A VARIETY OF DESIGNS







SUPPLEMENTING the general purpose, bolted-on type A Seco Return Bend, Types A-1 and Y are offered especially for cracking still duty.

Type A-1 employs the time-proved split ring for locking the bend to the tube, which eliminated all tube rolling. It is a perfect stream line return bend—can be installed for a fraction of the cost of rolled-in fittings and can be easily removed for tube replacement, without disturbing the adjacent tubes.

Type Y is an improved rolled-in fitting that can be furnished in a variety of designs, either with the stream line plug, as shown, or standard plugs.

Top: Type Y, an improved rolled-in fitting, designed for any service.

Lower Left: Seco Type A Return Bend, the original anti-friction bend. The method of locking the fittings to the tube affords advantages found in no other bend.

Lower Right: Type A-1, a modification of the Type A, especially suitable for cracking stills.

Complete information will be furnished upon request

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But we could point out how on your problem one would work while the other would not. To install the latter would cost you much more than the mere purchase price of the filter.

This emphasizes the importance of consulting us if you are planning to install any filter for any purpose.

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mately thirty pounds pressure in specially constructed tank cars known as Class 104-A. These cars are lagged with four inches of cork insulation, which is protected with a metal jacket, and are equipped with special unloading apparatus, such as eduction pipes, check valves, thermometer wells, and safety valves.

Several methods may be used for transferring the butane from the cars to the storage tanks—first, by the differential pressure method; second, by applying external heat and raising the vapor pressure; or, third, by gas pressure from the high pressure gas storage tank. The third method is in use at North Manchester.

The storage tanks are installed above ground, and built according to the A.S.M.E. code for unfired pressure vessels, and are equipped with the proper safety appliances.

From the storage tank the liquid is transferred to the vaporizer under pressure through a liquid regulator, the function of which is to maintain a constant reduced pressure of about five pounds to the vaporizer. The vaporizer is built the same as a multi-tubular condenser, the hot water or steam used for vaporization passing through the tubes and the butane liquid around the tubes. A small tank water heater will supply sufficient heat to completely vaporize the liquid, as the latent heat required per gallon of liquid is only 830 B.t.u.'s.

The butane gas leaving the vaporizer is maintained at a constant pressure of about six inches of water by means of a regulator located at its outlet. The gas then passes through a meter placed in the line to measure the volume of butane gas made, and to give a check on the amount of liquid used. The storage tanks are also equipped with a gauge so that a double check on the liquid is obtained. Any loss by leakage will thus be detected almost immediately. After leaving the meter, the gas again passes through another regulator ahead of the intake of the proportioning machine. This regulator is used to maintain atmospheric pressure at the intake of the proportioning machine.

The automatic proportioning or mixing machine used has a capacity of 6000 cubic feet per hour and is manufactured by the Kemp Manufacturing Co. of Baltimore, and is operated by a three horsepower motor. It mixes the air and gas in any desired proportion to supply a mixture of any desired calorific value. The ratio of air and gas can be controlled very easily by the operation of a proportioning valve. After the machine has been set at the desired ratio, it does not require any further adjustment or attention. The discharge

pressure of the proportioning machine is about three pounds.

The gas mixture, after leaving the proportioning machine, can go either into storage, or can be fed directly into the distribution system through a governor and station meter. The latter method, however, was not considered. If there should be an interruption of electric service, the proportioning machine would stop, and without a storage supply, the town would go out of gas.

A compressor, having a capacity of 5000 cubic feet per hour, in conjunction with a high pressure storage tank, was installed, and during the off-peak hours, gas is fed directly from the proportioning machine to the compressor, and thence at about fifty pounds pressure to the storage tank. During these hours, the town is being supplied from the storage tank, through a governor.

During peak hours the gas goes directly from the proportioning machine into the town, and any excess demand needed is supplied from storage.

The operation of the proportioning machine and compressor is made entirely automatic by the use of a pressure switch and a Tork clock.

As we desire to deliver a 550 B.t.u. gas to the system, the proportioning machine is set to take in 17.2 per cent of butane gas to 82.8 per cent of air. The ratio can, of course, be changed to deliver any desired B.t.u. The specific gravity of this mixture is 1.15. As a further guarantee that the B.t.u. content would remain constant, Englehard Thermal Conductivity Cells were installed to determine the butane content of the gas. This serves as a recording calorimeter, and also as a safety device in case the butane content should get too low. If this should happen, the proportioning machine would immediately be stopped automatically, and this would eliminate any danger of sending out an explosive mixture. The lower explosive limit of the gas is a mixture containing 2 per cent butane and the upper limit is 6.6 per cent. Beyond these points there is no danger of an explosive mixture.

Shortly after operations were started, difficulty was experienced with the Englehard Recording Calorimeter. Originally the Englehard Cells were set by the use of a Hays Analyzer for a 550 B.t.u. gas. After a short period of operation, it was noted that the gallons of butane per thousand cubic feet of gas made were running unusually high, or about 6.50 gallons per thousand, whereas it should be around 5.50 gallons per thousand.

Our engineering department, using a Junkers Flow Calorimeter, made a series of tests and found that the Englehard was recording low and that we were sending out a 650 B.t.u.

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gas instead of a 550 B.t.u. gas. After adjusting the Englehard, another series of tests with the Junkers was made and a new calibration curve determined; however, at this time, we are not at all pleased with the operation of this instrument, as we are unable to maintain a uniform B.t.u. on the city. A Ranarex Gravity Recorder is now being considered for this purpose.

Distribution System

The distribution system was built for high pressure distribution, of welded and coated steel pipe, and distributes gas at 1½ pounds pressure. The entire system was, at completion, tested at 100 pounds pressure.

The size of the mains varies from 4 to 2-inch pipe as follows:

610 Ft. of 4 Inch Pipe
11902 Ft. of 3 Inch Pipe
38428 Ft. of 2 Inch Pipe

50940 Ft.—Total

All services are of ¾-inch pipe, coated and welded to the main. Dead weight type regulators and cast iron case meters were installed with the services, the regulators being set to deliver gas at 6 inches of water.

The above distribution system was laid out to serve 500 customers. Using this figure as a basis for cost, we have:

Mains (actual)	$33,205.37
500 meters (Estd.)	6,150.00
500 Services & Reg. (Estd.)	12,650.00
Total	$52,005.37
or a cost per customer of	$104.00

Butane-air mix gas, on account of its high gravity and slow flame propagation, cannot be burned most efficiently in the present type of appliances without some minor changes being made, such as enlarging the size of the orifice in the burner spud, raising the burners so that the distance between the burner and the utensil is reduced from 1⅝ inches standard practice to 1 inch, and enlarging the ports in the burner. Tests have shown that these changes will save approximately 15 per cent in the amount of gas used over its use in our ordinary manufactured gas type of appliance.

Considerable work remains to be done before this type of gas can be used successfully on such appliances as Rutz lighters and refrigeration.

We have been unable to use either of the above appliances at North Manchester; however, the appliance manufacturers are co-operating and working on this problem of utilization and expect to have it solved shortly. A new development in lighters, known as the Instaflame, is being used successfully with this gas; several stove manufacturers are now using this lighter as standard equipment.

The stove companies, in conjunction with the Philfuels Co., have done considerable work in the proper utilization of this gas.

Following are North Manchester operating results for the period February 25 to March 24—actual:

Gallons butane used, corr. to 60° F.	1,141.9
Butane gas metered, corr. for temp. & press.	35,398.9 cu. ft.
Finished gas passed station meter, corr. for temp. and press.	203,910 cu. ft.
Gas registered by consumers' meters	137,000 cu. ft.
Used by company (metered)	45,700 cu. ft.
Total gas sold and used	182,700 cu. ft.
Unaccounted for gas	21,210 cu. ft.
Per cent unaccounted for	11.6%
Gals. butane per M gas used	5.60
Cost of butane F.O.B No. Manchester	$0.0888 per gal.
Cost per M gas sendout:	
Butane	49.70c
Pumping	14.40c
Lighting	2.40c
Water	1.00c
Labor	5.16c
Heating and Vaporizing 45,700@67.5c	15.13c
Cost Gas Sendout	87.79c
Unacc. For, 21,210@87.79	9.13c
Cost of Gas Sold	96.92c

Due to the time of the year in which the plant was put into operation (the middle of December) it was not possible to obtain the number of consumers first contemplated, as the people naturally refused to take out their coal stoves and install gas ranges at this period of the year. Consequently, the above costs are unusually high and are not to be taken as representing normal conditions. The total number of meters in use for this period was 70, and there are at present 272 services installed.

Assuming there would be 300 customers during the first year's operation, we would expect the operating costs to approximate as follows:

300 Consumers @ 23,000 Cu. Ft. per year	6,900 M Cu. Ft.
10% Unaccounted For	690 M Cu. Ft.
Gas used by the company for Heating & Vaporization	460 M Cu. Ft.
Total production	8,070 M Cu. Ft.
8070 MCF x 5.60 Gals. Liq. Butane per M @ $0.0888	$4,013.00

Power Rate:

First	200 KWH	7c
Next	300 KWH	6c
Next	3500 KWH	4c
Next	16,000 KWH	3c

Operating Expenses:

(1)	Butane	49.73c per MCF
(2)	Pumping	7.33c per MCF
(3)	Lighting	0.14c per MCF
(4)	Water	0.50c per MCF
(5)	Labor	0.71c per MCF
(6)	Heating & Vaporizing	3.47c per MCF
	Cost of Gas Produced	61.88c per MCF

Operating Expenses and Net Revenue From Sale of Butane-Air Gas to 500 Consumers at North Manchester

Population	3500	Consumers	500
Number of Houses	685	Capacity, 24 Hrs.	120 M
Franchise			$ 25.52
Cost of Butane Plant, Incl. Land & R. R. Siding			$19,252.78
Distribution System			
50,940 Ft. Main (actual)		$33,205.37	
500 Services & Regulators (estd.)		12,650.00	
500 Meters (estd.)		6,150.00	
			$52,005.37
Total Investment			$71,283.67
500 Consumers @ 23 M per year	11,500 M Cu Ft.		
Revenue @ $1.35 per M			$15,525.00
500 @ $12.00 per year, service charge			6,000.00
Gross Revenue			$21,525.00
11,500 M Cu. Ft. @ 61c		$7,015.00	
10% Unaccounted For		782.81	
			$ 3,483.88
Distribution & Office Labor		2,000.00	
Estimated that profit from Merchandise Sales would cover office expense			
			$ 9,716.50
Net operating Revenue, before Provision for Depreciation			$11,808.50
15% for Interest, Depreciation & Taxes on Gas Gen. Apparatus, Tanks, and Heating System ($12,085.34)		$1,812.00	
(6% Money—6½% Depreciation—2½% Taxes—15% Total)			
11% for Interest, Depreciation & Taxes on Distribution System, Building, R. R. Siding, and Miscellaneous Items ($59,198.33)		$6,511.82	
(6% Money—2½% Depreciation—2½% Taxes—11% Total)			
			$ 8,324.62
Net Income			$ 3,483.88
Cost of Plant per MCF of Capacity		$ 160.44	
Total Plant & Distribution Investment per MCF Capacity		594.03	
Cost of Plant per Consumer		38.50	
Cost of Dist. System per Consumer		104.00	
Entire Investment per Consumer		142.57	

New Refining Patents

Natural Gasoline, U. S. P. 1,754,605, 1,754,606 and 1,754,607, April 15, 1930, Julian A. Campbell.

THESE three related inventions cover improvements in apparatus for solvent absorption of gasoline vapors from natural gas, and for distilling off the gasoline from the solvent oil.

U. S. P. 1,754,605

This patent specifies a still which combines in one operation and in one apparatus both the distilling of lighter constituents from the absorbing oil and also the refluxing of the vapors with a reflux oil. By this departure from former practice, both simplicity and uniformity are imparted to the operations and to the equipment which they require. As a final result of this simplified separation of the gasoline from the absorbing oil, a very sharp separation is effected, each product being thoroughly freed from the other.

A refluxing operation is necessary for clean separation, because to evaporate all the gasoline the temperature must be high enough to give the heavy oil a considerable vapor pressure, so that some of it is evaporated. In order to combine the distilling and refluxing operations, a tower is provided which has steam coils in its bottom and a series of pairs of oil plates and agitation plates in alternate arrangement. Froth breaking pans are arranged above the plates so as to break up bubbles and minimize frothing.

The froth breaking pans are a particular feature of the invention. They have flat bottoms in which openings with sharp peripheral edges are suitably arranged; and they are fitted with raised sharp-edged rims which also help to break up froth.

In addition to the froth breaking pans, the inventor claims as the improvements embodied in his invention the arrangement of vertically spaced oil plates and agitation plates, surrounding the standpipe of the tower, and a system of liquid delivery tubes extending downward through the froth breaking pans to deliver liquid from one pair of pans to the next below, these features being essential to the combination of distillation and refluxing in one operation and one apparatus.

U. S. P. 1,754,606

This patent constitutes an improvement in the absorption of gasoline from natural gas, the principal feature being a means for efficient and economical removal of very volatile constituents from the gasoline in the absorption process. The principal object is to provide apparatus by which the undesirable volatiles are ejected immediately in the process of absorption, so that subsequent removal operations are unnecessary and the absorption product is already stabilized.

This is accomplished, in the continuous type of absorption tower, by introducing into the stream of absorption oil, part way down the tower, warmer oil which raises the temperature sufficiently to expel constituents which are too volatile for gasoline. The point of introduction of the warm oil may be, for example, about half way down the tower if the warm oil is at about 130 F., or farther down if it is hotter, under ordinary conditions of natural gasoline absorption.

The warm oil may also be introduced at more than one point in the lower part of the tower; the essence of the invention is that this lower part shall be hotter than the upper part by an amount sufficient to expel undesirable volatiles.

As a matter of heat economy, the warm oil which is passed into the lower part of the absorption tower is taken from the lean oil, after distilling off the absorbed gasoline from the fat oil and before cooling the lean oil for return to the absorption tower for re-use. The portion not withdrawn from the heated lean oil for use as warm oil is cooled and fed into the top of the absorption tower.

U. S. P. 1,754,607

This patent specifies a selective absorption apparatus, the purpose of which is to remove from natural gas all crude oil mist, fine solid dusts and entrained moisture before the gas enters the absorber for recovery of its gasoline content. Removal of the crude oil mist is important because the mist contaminates the absorption oil, increasing its asphalt content and shortening its useful life. Mechanical devices hitherto used for this purpose have been relatively ineffective. Removal of dust and moisture is necessary because they introduce difficulties due to emulsification.

The selective absorber provided for this purpose comprises a vertical cylinder having a series of perforated sheet metal plates, in the shape of inverted cones joined to the cylinder by liquid-tight joints. Each plate is fed from a pipe with a light absorption liquid. The gas, entering the cylinder through a float chamber at the bottom, rises through the perforated plates and causes the liquid to build up into a mass of froth. Each plate has a froth breaking pan and a number of liquid discharge tubes which lead down below the surface of the liquid in the float chamber, so that gas cannot pass upward through the discharge tubes.

This selective absorber serves the purpose of removing crude oil mist but not the vapors of gasoline hydrocarbons contained in natural gas; and at the same time, by the frothing arrangement, entrained solid particles are caught and held, while moisture emulsifies with the crude oil mist or is trapped in the froth. Thus the gas emerging from the absorber is clean and is also drier than the untreated gas, so that recovery of its natural gasoline content can be efficiently and economically accomplished.

* * *

Vacuum Distillation. U. S. P. 1,755,778, April 22, 1930, John A. Gibb, Assignor to Zieley Processes Corp.

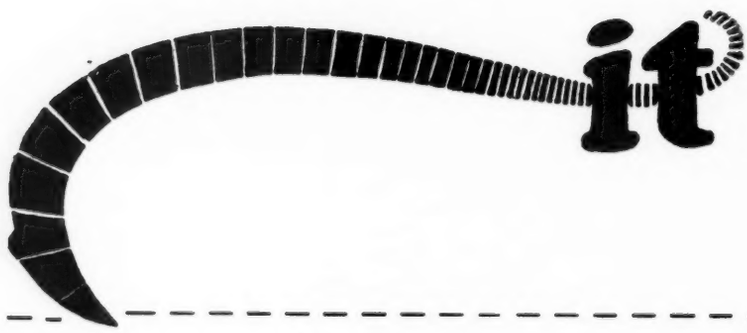
SOLID matter, accumulating in the chambers or tubes of a vacuum still and necessitating shut-downs for cleaning, presents one of the main difficulties in the practical operation of vacuum stills of the continuous type in oil refining. Solid deposits are particularly troublesome in distilling those oils which need to be distilled in presence of caustic soda; the soaps formed by action of the caustic on impurities decompose in the still and deposit "soda coke."

To overcome this difficulty and facilitate continuous operation, a vacuum still has been designed in which separator units are inserted between still sections, at or beyond the point at which formation of "soda coke" occurs. The separator includes a settling chamber and a vertical pipe which provides a head of liquid sufficient to balance the pressure differential between atmospheric pressure and the vacuum maintained in the still proper. Sediment collecting at the bottom of the settling chamber is removed by mechanical devices, e. g., an endless conveyor. Means are provided for adjusting the liquid head according to the desired vacuum.

By removing the solid matter under conditions which prevent deposition of "soda coke" within the parts of the still, the necessity of shut-downs for cleaning is avoided and continuous operation of the still can be maintained. The invention is applicable to multiple-unit stills, separator units being provided as needed.

What is Claimed: In multiple unit stills for continuous vacuum distillation, means interposed in a continuous passage between still units for separating sediment from the oil, and an open conduit from the separator unit to the atmosphere for removal of collected sediment, the conduit being sealed by the oil contained therein, the passage, separator and conduit being high enough to provide a liquid head which will balance atmospheric pressure against the vacuum maintained in the still units.

Here's How You Can Stop



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Visiting Around the Refineries

By Arch L. Foster

National Petroleum News

THE British-American Oil Co. of Toronto has developed a unit originally designed for topping 2000 barrels of Pampa crude per day until it can now handle 5000 barrels of this crude per day, taking off gasoline, kerosene, gas and furnace oil from the new unit with very little additional expense.

The original unit was a Foster tube still and bubble tower. To increase the capacity of the still, one bank of four-inch tubes was removed from the radiant section, and two rows of five-inch tubes were installed in place of the four-inch. Vapor and liquid heat exchangers were also installed for preheating the charge. To take a part of the load off the tower, an old shell still was cut into the system, also equipped with a bubble tower and vapor heat exchanger.

As now operated, the crude is passed first through vapor heat exchangers where it picks up heat from gasoline vapors coming off the top of the main bubble tower; it is further heated by exchange with liquid kerosene, gas oil and heavy residuum from the tube still. Crude then passes through a coil in the tube still which was originally used as steam superheater coil; it is then flashed into the shell still, under which a moderate fire is kept with cracking still coke, to keep the temperature in the still a few degrees above that of the incoming crude. Part of the gasoline in the crude is here flashed off, and is fractionated in the small tower.

From the shell still the flashed crude is fed continuously to the tube still. This still is fired with cracking still coke "breeze," using a hand fed, automatically controlled Combustion Engineering Corp. underfeed stoker. On leaving the tubes the oil is flashed in a separate flash tower, vapors passing to the bubble tower, the bottoms passing through the liquid heat exchanger previously referred to. Kerosene and gas oil distillate are taken from the side of this tower, gasoline overhead. The reduced crude is used as charging stock for Dubbs and Cross units.

Overhead temperatures in towers are controlled by open reflux of raw distillate pumped into the top tray of each tower.

According to L. E. Woolley, refinery superintendent, this plan has not only resulted in increasing the throughput by two and one-half times, but has materially reduced distillation costs, with relatively small increase in plant investment.

* * *

THE ORIENT REFINING CO. has just recently completed the erection of a 2250-barrel Jenkins cracking unit at its Wichita refinery. It embodies the latest developments in the construction of this type unit.

The unit is designed to produce 500 barrels of finished gasoline per day, a Gray vapor treating tower being included in the plant. The operation of the unit is in charge of Charles Inman, formerly of the operating staff of the Graver Corporation, which installed the plant. Mr. Inman has had many years experience in the construction and operation of various types of cracking equipment, having operated Dubbs, Cross and others in addition to several years work in the Graver and Jenkins' organizations.

The unit will charge topped North Texas crude, producing gasoline, fuel oil and recycle stock. It will be in regular operation within thirty days, according to the officials of the company.

* * *

THE ORIENT PETROLEUM plant has also been augmented by the addition of a 2500-barrel topping plant designed by company engineers and constructed entirely of salvaged material from other dismantled plants with the exception of tubes and some insulating material. The unit consists of tube still, vaporizer, two bubble towers, two heat exchangers and the necessary piping, condensers, and run-down tanks. It will be used for topping North Texas crude, producing gasoline, kerosene, gas oil, and reduced crude for charging to the Jenkins unit.

* * *

CHARLES INMAN has resigned from the staff of the Graver Corp. to take charge of the operation of the new Jenkins installation of the Orient Refining Co., Wichita Falls. Mr. Inman is one of the "old heads" in the gentle art of cracking hydrocarbons, having a long experience with Dubbs, Cross, Jenkins, and other cracking processes. He states that he has never yet had the chance to determine to his satisfaction just what can be done with a cracking unit properly built and properly operated, and he's now going to see what's what.

* * *

FRANK HOVELL, manager of the Grayburg Oil Co.'s plant at San Antonio, Texas, in the land of cacti, chile con carne and perpetual summer (tourists), who has been seriously ill for some time, is well on the road to recovery. He has been able to attend to his duties at the plant for some weeks now, and expects to be "out of the woods" completely in a short time.

* * *

RALPH R. LANGLEY and J. V. Westbrook, president and secretary respectively of the Carbon Products Co. of Los Angeles, breezed into our office the other day, paying a friendly call while on their way to the bright lights of Gotham.

The Carbon Products Co. is operating a small carbon black plant in southern California, producing both carbon black and lamp black from heavy residual oils. A new plant, of 30,000 pounds per day capacity, will be finished in the near future, after which we may expect a very black cloud to "come out of the West." Well and good, let it come.

* * *

T. J. HILLIARD, president of Waverly Oil Works, Pittsburgh, has shaken the (coal) dust of the city from his feet, and is moving to the suburbs, or country as he puts it, taking with him family, chattels, Lares and Penates.

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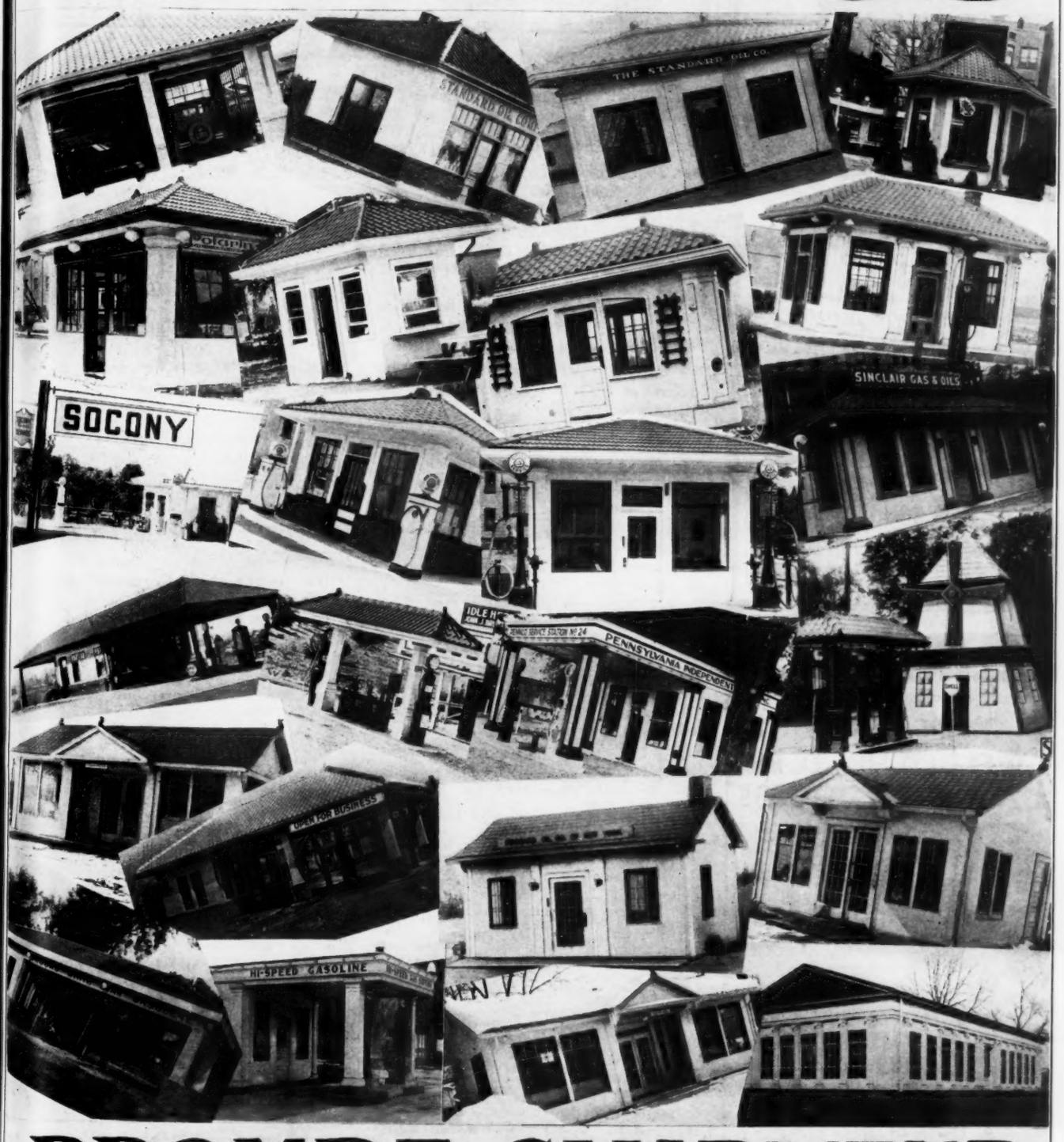

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ON THE LAZY BENCH

National Petroleum News

They Make it Faster

We read the other day where a plumber in Germany had a system of making gold from lead pipes.

They don't do that here, as they find that working by the hour is a faster method.

—The Gas Line

* * *

A pinch of salt is greatly improved on a warm afternoon by dropping it into a stein of beer.

—The Piper

* * *

Even Then

Flapper: "He said that when he looked at me he was reminded of Raphael's angel!"

Youth: "Yeah? His angel was painted too."

—The Gas Line

* * *

They're All That Way

Buyer: "Is this airplane absolutely safe?"

Seller: "Sure thing. The safest on earth."

—The Gas Line

* * *

Ouch!

Wife: "I believe you often wish I had married another man."

Husband: "Nonsense! I have no enemies."

—The Gas Line

* * *

They Do!

Mother: "Where do bad little girls go?"

Betty: "Most everywhere."

—The Gas Line

* * *

A Man's Job

He: "Did you make these biscuits with your own little hands?"

She: "Yes, why?"

He: "I just wondered who lifted them off the stove for you."

—The Gas Line

* * *

Modernized

The old fashioned vow of "going through fire and water" has been changed to "going through red lights and windshields."

—The Gas Line

* * *

Not Guilty

Judge: "Are you guilty or not guilty, Rastus?"

Rastus: "Not guilty, suh."

Judge: "Ever been in jail?"

Rastus: "No suh. Ah nevah stole nothin, befo'."

—The Gas Line

Rah! Rah! Rah!

"Now remember, my dears," said Mother Raccoon to her children, "you must always watch your step, because you have the skin the college boys love to touch."

—The Gas Line

* * *

Not So Crazy

Patient (at insane asylum): "We like you better than the last doctor we had."

Doctor: "How is that, my good man."

Patient: "Well, you seem more like one of us."

—The Gas Line

* * *

Customer: "I don't like the looks of that mackerel."

Fish Dealer: "Vell lady, if it's looks you're after, vy don't you buy gold fish?"

—The Gas Line

* * *

"Who called this afternoon?" asked the suspicious husband.

"Oh, only Aunt Mary," replied the wife.

"Well, call her up and tell her she left her pipe."

—The Gas Line

* * *

He: "I pulled a 'bloomer' at the big party last night."

She: "What an old-fashioned party!"

—The Gas Line

* * *

Had a Load

Magistrate: "Are you sure he was intoxicated?"

Policeman: "No sir, not positive. But his wife says he brought home a manhole cover and tried to play it on the phonograph."

—The Gas Line

* * *

Boilers, No Doubt

Big he-man: "I developed these big muscles by working in a boiler factory."

Sweet young thing: "Oh, you great, big, wonderful man! And what did you boil?"

—The Gas Line

* * *

Barber: "You say you have been here before? I don't seem to remember you."

Customer: "Oh! It's all healed up again."

—The Gas Line

BALCRANK
CHASSIS LUBRICATOR

AUTHORIZED SERVICE STATIONS

Balcrank Electric Chassis Lubricators

Balcrank Electric Chassis Lubricators are famous for their ease of operation and efficiency . . . from the "E" Electric Lubricator, using high pressure grease . . . the "ER" which permits the use of any type of grease . . . to the Multiple Outlet Electric Lubricators, centrally located . . . serving any size station . . . using the famous Balcrank Booster Guns. Preferred by operators who appreciate efficiency.

Balcrank Air Operated Chassis Lubricators

Here again is a famous line of grease guns . . . the dynamic "F" lubricator with a 13 lb. capacity, the fastest air operated gun ever built . . . the Balcrank P. C. (pound capacity) trigger gun and the Balcrank Booster Gun . . . used with the Balcrank Central Units . . . all with a pressure of 6,000 pounds at the bearing . . . each shot of grease measured and controlled.

Balcrank Manual Chassis Lubricators

Here is where the Balcrank "D" Chassis Lubricator . . . foot operated, comes into popularity . . . 13 lb. capacity . . . easy to operate . . .each shot of grease measured and controlled . . and a pressure of 6,000 lbs. at the bearing.

BALCRANK authorized service stations are located in strategic cities throughout the country . . . and owned and operated by men of responsibility . . . assuring Balcrank Service quickly . . . efficiently . . . thoroughly. Balcrank Chassis Lubricators, however, seldom require expert service because they are perfect in construction, design and in material. Buy Balcranks and be satisfied. The Cincinnati Ball Crank Co., Cincinnati, Ohio.

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Detroit Supply Co., 78 Central Ave.
ALLENTOWN, PA.
Bee Automobile Company, 618 Linden St.
ALTOONA, PA.
Central Auto Supply Co., 1097 Green Ave.
ATLANTA, GA.
Balcrank Sales Co., 596 Spring St., N. W.
BALTIMORE, MD.
The H. & H. Sales Co., 613 W. North St.
BINGHAMTON, N. Y.
United Auto Parts Co., 133 Water St.
BOSTON, MASS.
Jackson Electric Co., 124 Brookline Ave.
BRIDGEPORT, CONN.
Crannell's Garage, 139 Arctic Ave.
BROOKLYN, N. Y.
G. J. Seedman Co., Inc., 765 Atlantic Ave.
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Wick's Equipment & Service, 12 N. Jefferson St.
DETROIT, MICH.
C. A. Nutting Co., 6412 E. Jefferson Ave.
EVANSVILLE, IND.
Orr Iron Company, 17 E. Penn St.
FAIRMONT, W. VA.
Pittsburgh Auto Equipment Co., 116 Jackson St.
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Grant-Dadey Co.
GRAND RAPIDS, MICH.
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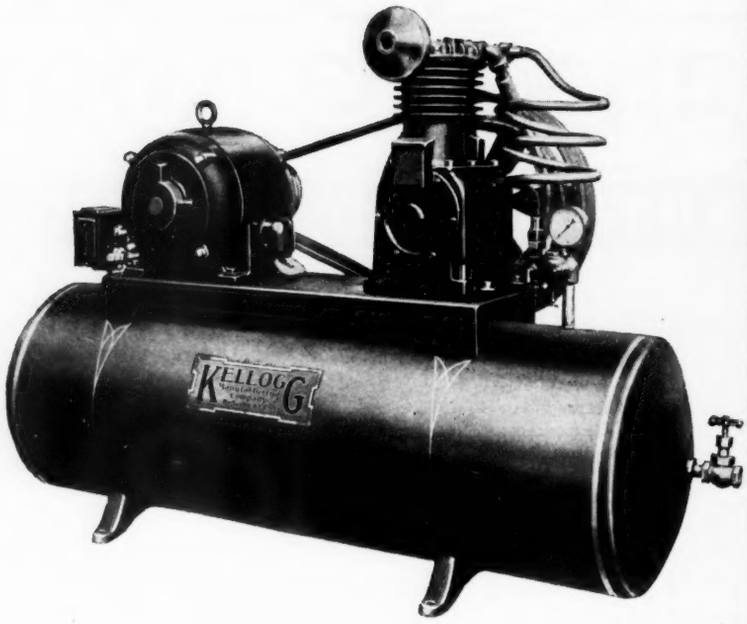

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Of welded steel construction and equipped with Timken Bearings, it will be a steady worker in any service station.

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For spring oiling, engine cleaning, or similar work where a finely divided spray of liquid is required. Long nozzle reaches inaccessible parts.

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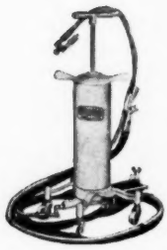

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Price $20.00 Net

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Complies with legislation of all states. The first accurate pump built integral with an accurate meter. Pump is positive . . . does not by-pass, requires no priming. Meter registers grease delivery in ¼, ½, ¾ and full pints. Total counter is returned to zero after each job. Dust-proof, easy to fill, equipped with 5 ft. special grease-proof hose and drip-proof nozzle. Also made for 100 pound cartridges.

$16.50 Net

California School Trains Men to Head Lubrication Service Departments

By Jack N. Westsmith
N. P. N. STAFF WRITER

LACK of knowledge of proper lubrication principles is the greatest obstacle to be overcome in the sale of automotive lubricating equipment.

This is the theory upon which Pacific Lubrication Engineering Co., Los Angeles, has opened a school for the instruction of embryo lubrication service men on the Pacific Coast.

The project was started as a means of decreasing sales resistance among the company's lubrication equipment prospects. It was anticipated the cost of maintaining such a school would have to be charged to sales expense, but results have shown the school can carry itself.

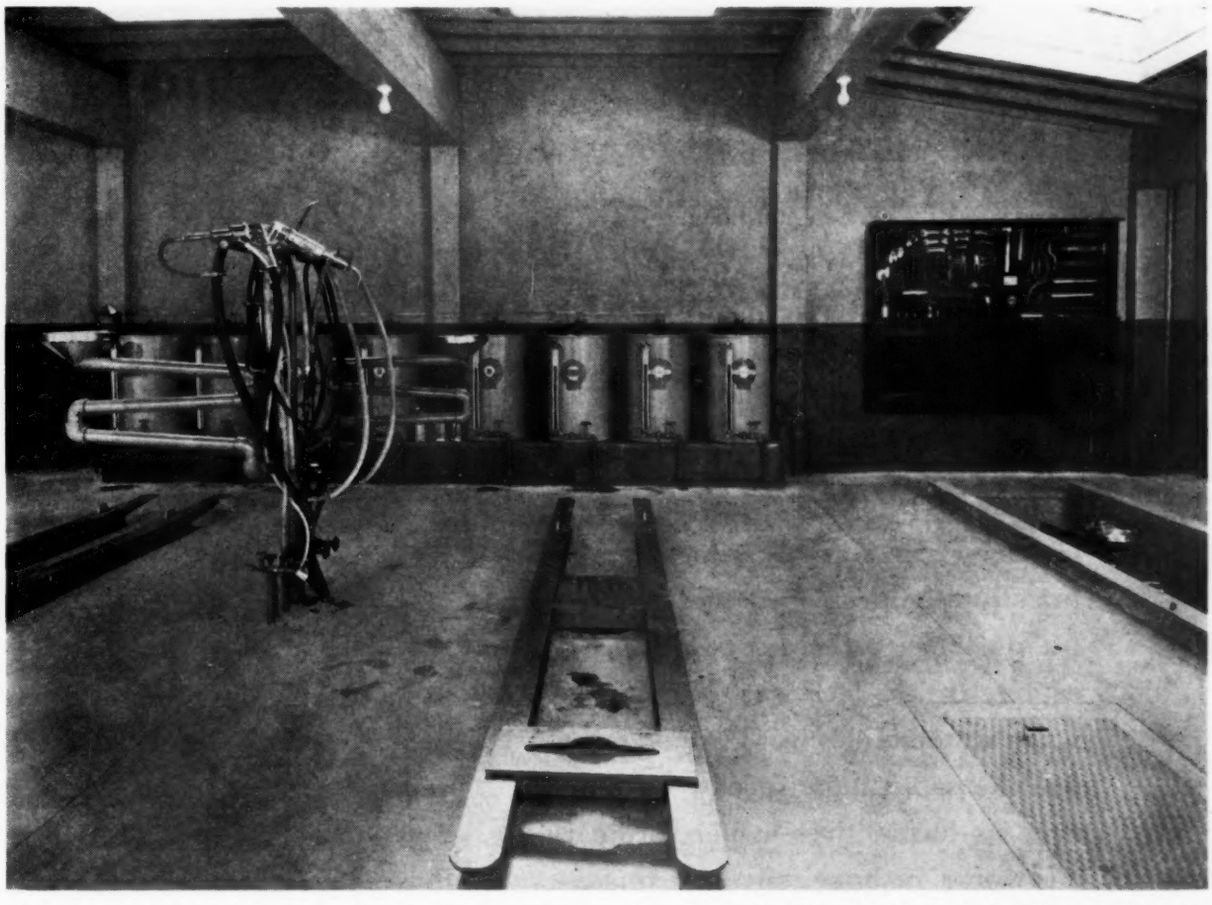
H. H. Quackenbush, chief engineer of this company, which goes under the trade name of Pleco, has been working on this educational plan many years but it is only recently that he has had an opportunity to make his dreams actualities.

Before 1925 he was general superintendent in charge of service station operation for Standard Oil Co. of Indiana. when this department of the oil industry was in its infancy and service stations consisted of small tin houses on side streets or in back alleys of eastern cities.

When filling stations, became profitable outlets for petroleum products, Mr. Quackenbush first had his dream of an efficient, complete and properly operated lubrication department in every station operated by the company. However, the plan he suggested fell through although not before drain pits had been installed.

After he left Standard of Indiana, Mr. Quackenbush opened several service stations, and equipped each of them with a complete lubrication department. Later he sold his interests in this enterprise and moved to the Pacific Coast to represent the Gray Co. of Minneapolis, maker of lubrication devices.

In 1929 a lubrication school was opened in Los Angeles. It had as its primary objective the training of em-



A model lubrication department at the Powell Tire Co., Oakland, Cal., distributors for General Tire Co. Layout shows typical Pleco and Graco installation, including tool display rack, hydraulic hoists, automatic grease-gun assemblies and swivel waste oil hoppers. High pressure grease tanks are placed below floor level under trapdoor shown in lower right foreground

The Throttle Is

The Galena Program is a reality—more, it's a proved success. . . . Utilizing every natural advantage that past achievements have given Galena, marketers are now offered a truly Super Motor Oil—time tested for 61 years—backed by a name that has meant supreme quality to millions for over two generations—guided and empowered by every known successful merchandising and advertising aid.

What is there about the Galena program that makes it different? . . . Why should you choose it instead of others? . . . . . The reasons are so sound, so maturely seasoned by time that they will always remain Galena's exclusive advantages.

Eighteen years ago, a young man seeking his ladder to success, chose the Galena Process as his vehicle. As lubricating engineer, as district manager, he daily saw its supreme lubricating virtues. He visualized the day when automobiles would operate under the same high speeds and long runs as locomotives—when ordinary oils would be hopelessly inadequate—then Galena's Process would be DRAFTED into the automotive field as an absolute essential.

This year, that man saw his faith in Galena's Process substantiated. . . . Galena's Automotive Campaign was launched in a large Western city. It was successful beyond his fondest anticipation. The time is right—motorists proved their interest by buying Galena—and proved its worth by buying again.

Galena is not "just another oil"—not a new "fashion"—not a "chemist's dream"—but a 100% Pure Pennsylvania PROCESSED SUPER OIL. For 61 years railroads have proved Galena's Process over countless millions of miles.

ASK ANY RAILROAD MAN

Wide Open . . .

It's "Full Speed Ahead" for

GALENA

PROCESSED

Motor Oils

Every famous worth while railroad record for speed, distance and tonnage was made with Galena lubricated trains. . . . Those unmatched heroes of speed—"Casey Jones," John Hogan and his famous "999," and "Death Valley Scotty" are indelibly connected with Galena. . . . No fancy laboratory tests proved Galena, but 61 years of the hardest kind of service—the daily conquering of extreme conditions—not once, not reproduced by laboratory equipment, but by 61 years of acid tests under all kinds of conditions.

And what does this all mean to you? A TREMENDOUS LOT? It means that now *you* can supply today's demand for a motor oil that is truly a SUPER Oil—an oil that is 100% Pure Pennsylvania Oil PLUS—that gives an immeasurably stronger, tougher, tenacious oil film—reinforced, armorized, richer in oiliness, greasiness—made so by Galena's Plumboleum Process. Every lubricating virtue given to a superior grade oil has been retained and augmented in strength and durability just as the Open Hearth Method converts wrought iron into steel or as the annealing of steel refines the very structure of the metal itself. Galena's Process adds—not subtracts—like adding cream to rich country milk.

(CONTINUED ON FOLLOWING PAGE)

HE KNOWS GALENA

There Is a Demand in *Your* Territory

There is a demand in *your* territory for this premium motor oil. GALENA has a program that will bring *you* this business. It is worth *your* while. It will be profitable.

We'll let *you* judge by the results obtained in other territories. . . . . We'll let *you* judge the demand that our dominating advertising campaign is bringing to our dealers. . . . . We'll let *you* compare your present earnings with GALENA'S *unusual* profits.

For the sake of your own business, look into what GALENA *has* accomplished and *will* accomplish for *you*. Get the facts. Return the coupon.

Why GALENA'S Process Gives Unmatched Economies.

1 GALENA is 100% Pure Pennsylvania Oil—PLUS!

2 This supreme oil is immeasurably strengthened, armorized and reinforced by the introduction of Plumboleum (Lead Oleates) in permanent solution, like salt in water.

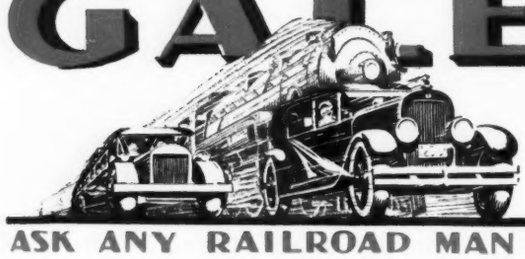
3 Oil globules are reinforced, strengthened, armorized, withstanding in greater degree intense heat and friction at high speeds—like cord tires vs. fabrics.

4 GALENA is oilier, greasier—giving a better lubricated, quieter, cooler running motor.

5 The oil layer closest to the metal, unites and forms a perfect, permanent, protective film that fills in the tiny pores and interstices of the metal, and gives protection when most motor wear occurs — from instant motor is started until normal oil circulation is established and at high speeds.

6 Sixty years—billions of miles —*prove* these exclusive advantages.

GALENA



PROCESSED OILS

ASK ANY RAILROAD MAN - *HE* KNOWS GALENA

From Franklin, Penna.

GALENA OIL CORPORATION

CHICAGO OFFICE: WILLOUGHBY TOWER BUILDING

GALENA OIL CORPORATION, Willoughby Tower Building, Chicago, Ill.
Gentlemen: Yes, I am interested in Galena Oil. Without obligation, give me full details.

Name .....

Firm .....

Address .....

City ..... *State* 6-4-30

Pioneers in Safety and Service Since 1869

At left, a tool for every purpose is shown on this complete tool rack at the Los Angeles lubricating college. Standing in front of the board H. H. Quackenbush, originator of the school idea is to the left, and next to him is "Billy" Stephens, head instructor

Below, students at the lubrication school giving a customer's car a thorough going over, under the supervision of master lubricator "Billy" Stephens

ployes of users of Pleco and Graco equipment.

The school was enlarged later to train any man with the thought that the school might place graduates in charge of lubricating departments of customers, who because they were new in the business had no trained staff.

Equipment at the school is that recommended by the equipment company in its free planning service for lubrication departments of service stations or garages. This planning service offers layout designs so as to use most efficiently available space. Lists of equipment necessary for economical operation are also supplied.

The company recommends various combinations of the pit, rack, and hoist. The exact set up depends upon available floor space and head room. If speed is essential, the pit is considered most satisfactory but for ease and thoroughness of operation the rack and hoist are favored.

Whichever combination is used the company suggests multiple installations of greasing assemblies, including pistol and meter guns, spring oiler, and waste-oil swivel hoppers. Its service plan includes supervision of installing this equipment.

On the theory that various bearing constructions require different lubricants, the company includes in its model set-up four 150-pound pressure tanks to supply proper oils and greases to their respective automatic grease guns.

The four tanks, built according to A. S. M. E. specifications, contain, respectively: high-pressure chassis grease; transmission and differential gear grease; transmission and differential gear oil, and a heavy fiber or splicer universal joint grease.

These tanks are placed either in one end of a pit—if that type of lubrication stand is used—or against the wall above ground if only racks or hoists are used. The most feasible location is one giving due regard to accessibility for refilling and proximity to air pump and greasing assemblies so that installation costs may be reduced. Waste oil tanks are usually placed under ground.

A piece of equipment that engages the immediate attention of the motor car owner, is a large tool board or rack which contains a place for every kind of wrench, screw drivers, pliers, hammer, hand grease guns, and any other tool needed in lubricating a car. The outline of each tool is painted red so that if it is not replaced the operator is reminded of the fact by the empty space.

Of course, the school idea as applied to either the automotive or other industries is not new, but it is thought that this lubricating school is the first attempt of an equipment company to use this method of increasing sales.

This school has a staff of instructors. The head instructor, previous to his connection with the school, had successfully operated a complete lubrication department in a southern California super-service station.

"Billy" Stephens, the head instructor, attributes his success to a knack of doing a lubrication job just a little better than a competitor.

When instructing his pupils, he insists that they not only give every moving part its full share of lubricant and no more, but that they see that every nut and bolt is tight and that sundry squeaks are eliminated. He contends it is these small things that convince the average car owner he is getting his money's worth.

A man to register in this school needs a willing spirit and a strong back as prerequisites. Although the company makes no tuition charge it recommends that the student buy a book of charts dealing with the lubrication of every make of automobile. The cost of these guides is $15.

During the first few days at school, the student is told to familiarize himself with the charts. After one or two days of study, depending upon the amount of concentration he gives the subject, he is given an oral examination.

This test covers some of the most important principles governing a lubrication job as it applies to various makes of cars, such as bearing construction and the requirements of these

bearings in both quantity and quality of lubricant.

The pupil is then ready for practical instruction. The first day on the job he spends in learning the proper place for every piece of equipment and the method of operating it. He also watches Mr. Stephens and the more advanced students work on cars that belong to customers or the school. He is shown a few tricks of the trade from time to time. These tricks consist mainly of detecting and eliminating squeaks in doors, hinges, floor boards, headlights or chassis.

With his book of charts available for quick reference, the student first tackles everything under the hood—the fan, generator, water pump, distribution starting motor and steering gear. These are all lubricated and tightened.

Before the car is hoisted bumpers, fenders, floorboards, tire or trunk rack, and door hinges are all gone over to eliminate any squeaks. Wherever a nut or bolt is missing it is replaced from a supply kept in a cabinet carried as part of the equipment on the tool board. The cabinet contains nuts, bolts, shims, cotterpins, and washers for every make of car.

Front and rear spring bolts and shackles are then given a thorough greasing by raising the car shoulder high. The car is then raised to the limit of the lift and the student proceeds to lubricate points under the car.

Thoroughness with speed and order are required of the student.

The school has regular patronage. Although it charges more than the average lubrication department, the class of service rendered attracts customers.

A flat charge of $2.50 is made to lubricate any automobile thoroughly. The service includes tightening nuts and bolts and removing squeaks. Transmission and differential housings are checked. Compound added is 30 cents a pound. If desired these housings are cleaned for 75 cents each.

A labor charge of $1 is made to clean oil filtering systems and to put in new filter cartridges. The company recommends that these filters be changed every 10,000 miles. Other miscellaneous jobs are performed at nominal figures.

Applications for the instruction have been so numerous that it recently opened branches in San Francisco and San Diego. It contemplates other branches at Portland, Ore., Seattle, Wash., Phoenix, Ariz., and Salt Lake City.

Uses Deep Rock Oil In Flight

CHICAGO, May 29.—When Albert W. Mooney, young airplane manufacturer of Wichita, Kan., attempted to set a cross-country flight record in a low wing monoplane of his own make in April, he used 146 gallons of gasoline in 22½ hours, or an average of 6.6 gallons per hour, and only one gallon of engine oil. He was using Deep Rock Aero oil made by the Deep Rock Oil Corp., Chicago and Tulsa, formerly the Shaffer Oil Refining Co.

Dick Allen, manager of the aircraft division of the Deep Rock company in Chicago, flew to Indiana to meet the aviator where he had been forced down near Fort Wayne.

Letters to the Editor

I HAVE read editorial on page 21 of the April 2 issue. (Is it Spirit, or Letter, of the Code that Counts).

We are glad to note the remarks. They are much to the point, but you could have safely made it much stronger had you known all that is going on in this section. It would appear to us that the code of ethics was especially framed for some of the big boys. Three or four years ago when The Texas Co. put in their L & L in this section a great howl was set up about it, and everything possible done to block a continuation along this line.

At this time we find two or three of the major companies putting over the authorized dealer lease, and also the straight lease, taking these for periods ranging up to five years; and, in addition to this method of tying up the business, they then issue the courtesy card which gives the holder a two-cent reduction through their stations or through their authorized dealer's station, claiming that courtesy card is only issued where the holder has an established line of credit, or can establish a line of credit.

The authorized dealer agreement guarantees the dealer three cents margin and one cent rental when signed. This margin is dependent upon the dealer maintaining the same price as is maintained at the service station of the major company. Yet, if he takes on any commercial business, the dealer has to loose the two-cent concession made to the commercial user or courtesy card holder. In the case where they have an outright lease it is upon the same margin, but the oil company controls the price and tells the operators when they shall change their prices, and the lessee gets the profits from sales, yet he is tied up and acknowledges receiving one cent as a rental for the place.

We have been called by one of the major companies and advised—yes, requested—not to put any more of our products in a particular place, as they had it leased, yet the lease was not on record. After conferring with our attorney we decided to continue selling them as long as they will buy our product, yet we understand from the code of ethics that we should not solicit any business from those that are signed up.

This all brings us to the point that we have withdrawn from the code of ethics. As independent dealers we have been severely criticized by some of our competitors because we were selling to the independent dealer and permitting him to cut prices, when in point of fact all the independent dealer was doing was to meet the major company courtesy card and commercial concession and get the money. As we view it, it is much worse to get the cash money on a sale at a concession similar to that offered by the major companies than it would be if these same independent dealers would issue a courtesy card and sell on credit.

The writer has been in the oil business here for about 20 years and marketing conditions and prices on gasoline are the worst that we have known it during that time, and I am firmly convinced that it is all brought about by the big boys trying to control all angles of the game as well as being willing to put in pumps and tanks at any hot dog joint that might rise up over night.

Until about three or four years ago, I had never paid a cent rental, put in a pump free or offered any other inducement for business other than to sell on the merits of the product. We have never suffered by going into a good clean competitive battle for business, and we could go back and do the same thing today and enjoy just as much in volume of business as we now have by putting out thousands of dollars every year in equipment and rentals.

I hope you will keep driving home those things which you have mentioned in your journal and believe that it is bound to do good.

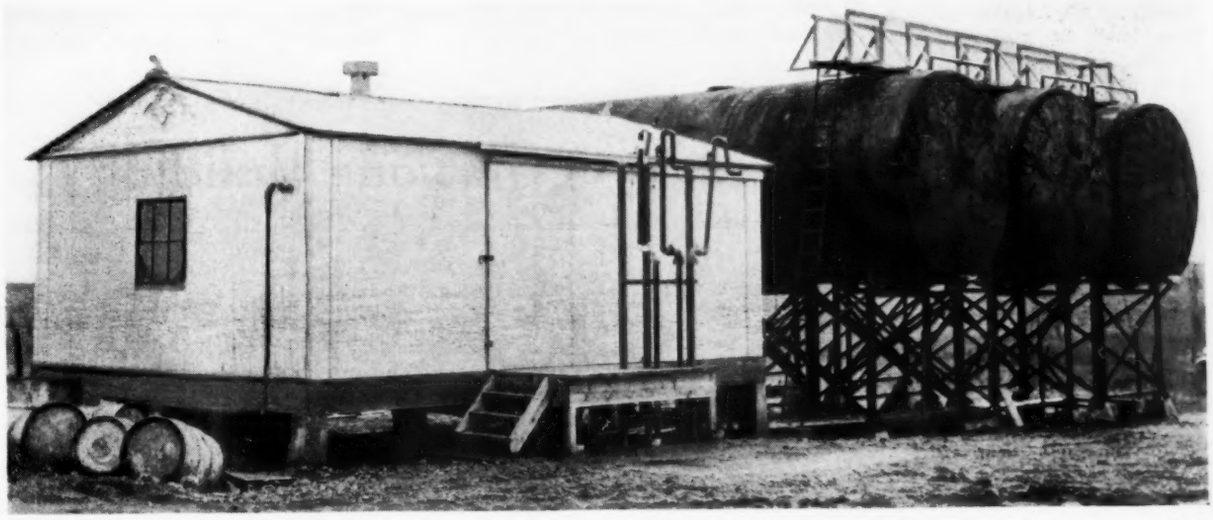
I wish also to congratulate you on the statements contained in your journal relative to some of our politicians whom we are sending up to make laws for us. I am heartily in favor of a tariff on both crude oil and finished products, and hope that Mr. Franklin can put it over, and feel that I am in a position to help him to some extent as I am pretty well acquainted with several congressmen and two or three senators.

Wishing you success in your worthy efforts, I am

Your very truly,

(Signed) W. A. Fowler.
Volunteer State Oil Co.
Knoxville, Tenn.

ADVERTISING PAGES REMOVED



The type of bulk plant being erected by the M. F. A. Oil Co. of the Missouri Farmers' Association. This plant is at Rolla, Mo. Tanks have been allowed to scale over the winter. All tanks are to be covered with an aluminum paint, with the company's emblem, this spring

Missouri Farmers' Assn. Enters Oil Business with Plants, Stations

By E. L. Barringer
N. P. N. STAFF WRITER

ST. LOUIS

THE Missouri Farmers' Association has begun to sell petroleum products to the general public in Missouri by organizing a farmers' cooperative oil company. Eighteen bulk plants were in operation by the middle of April. Others were being erected at the rate of two to four a month. About 50 are expected to be in operation by the end of this year.

Gasoline, kerosene, lubricating oils, and greases are being sold to the public by this cooperative company through its service stations and by tank trucks from its bulk plants at oil company posted prices. At the end of the year the profits will be distributed to association members who patronize the cooperatives after funds have been set aside for reserves and the interest paid on the certificates of indebtedness issued to build the plants. The patronage dividend is to be paid on the basis of goods purchased, in gallons and pounds.

The Association has organized the M.F.A. Oil Co., with headquarters in St. Louis. This company supplies the petroleum products and equipment for the plants.

The M.F.A. Oil Co. is responsible to the executive committee of the association's board of directors. This committee consists of seven members appointed by the board of directors. Executives of the oil company are William Hirth, president, who is head of the association; J. Wiley Atkins, Lebanon, Mo., vice-president; R. J. Rosier, Columbia, Mo., secretary and treasurer, and O. Rudolph, comptroller. Active management of the M.F.A. Oil Co. is vested in two experienced oil men, former employes of the Pierce Petroleum Corp., St. Louis. They are L. F. Broach, manager, and R. L. Higgins, director of sales.

Cooperative bulk plants are managed by a bulk agent, employed by the M.F.A. Oil Co., and responsible directly to headquarters at St. Louis. He is paid a commission on his sales. Service station attendants, tank truck drivers, and other employes are employed by the M.F.A. Oil Co. but are responsible to the local bulk agent. Each bulk plant has an advisory board of local association members, usually five men.

Petroleum products sold by the cooperative plants are purchased through the M.F.A. Oil Co. Light oils are bought from the refineries, and shipped direct to the local plants in tank car lots. Lubricating oils are purchased in tank cars, shipped to a St. Louis compounding plant which blends the oils under contract for the M.F.A. Oil Co. All products are branded M.F.A. The complete oil line is a regular grade of gasoline, a benzol blend high test gasoline colored red, one grade of kerosene, a Pennsylvania grade lubricating oil, a Mid-Continent lubricating oil, and a full line of greases.

Bulk plants now are erected by the M.F.A. Oil Co., but the first 10 plants were erected by an equipment company. Now the company has its own construction department.

Financing of the local plants is through sale of certificates of indebtedness to members of the association, and to persons at large. About $10,000 is invested in a bulk plant. These certificates bear interest at 8 per cent a year, are transferable with permission of the company, and have no voting rights. The M.F.A. Oil Co. may redeem the certificates at its option.

Stock of the M.F.A. Oil Co. is held in escrow by the executive com-

mittee of the board of directors of the association.

Division of the profits of the cooperatives will be made at the end of the year. Ten per cent of the profits will be placed in reserves. The 8 per cent interest on the certificates of indebtedness will be paid next. The balance will be distributed as the patronage dividend.

Profits from each plant are separate from any other enterprises of the association including other bulk plants of the M.F.A. In case a member has traveled during the year, and purchased gasoline or oil from other plants, he will share on such purchases as the other plants have prospered. For instance, a member buys 500 gallons of gasoline from his local plant. The patronage dividend is 2 cents a gallon, so he receives a dividend of $10. If he purchased 10 gallons of gasoline from a neighboring cooperative plant's service station, and that plant pays 3 cents a gallon his dividend on that purchase will be 30 cents.

All money of the cooperative's sales is retained in an account with its local bank. The M.F.A. Oil Co. draws a draft on this account for petroleum products or equipment purchased. Dividend checks are drawn on this account also.

The first cooperative plant was completed in October, 1929. The plants, in the order of their erection, are at Wright City, Union, Crocker, Marthasville, Rolla, Lincoln, Higginsville, Springfield, Russellville, Lebanon, Macon, Bucklin, Shelbina, Marshall, Booneville, Hermann, Owensville, and California. These cooperatives operated about 60 service stations and have about 90 pumps out. Ten of the stations have been leased from the original owner.

The Missouri Farmers' Association was founded 15 years ago. It combines the grains, live stock and produce of its members, and enters the markets to sell the commodities so members have the advantage of collective selling. The association's activities in selling commodities to its members has been in flour, mixed feeds, bindery twine, fertilizer, and coal; and now petroleum products. Farmers may join the association by paying the annual fee of $2.50, and a fee of $1.50 for the contract. They agree to market their products through the association and may buy from the association's elevators.

The association at present has about 90,000 paid-up members. About 375 elevators are owned throughout Missouri. For the last few years the association has sold about $150,000,000 worth of products for its members annually. Patronage dividends recently have amounted to more than $1,000,000 each year, after reserves and interest funds have been deducted.

Each year members of the association hold a convention at Sedalia, Mo. The convention elects 33 members to the board of directors. In turn the directors elect the executive committee of the board of directors of seven members which manages the association's enterprises.

New Stations Building

Note: Material used in this column is principally taken from the newspapers. NATIONAL PETROLEUM NEWS assumes no responsibility for its accuracy.

The list as published from week to week cannot be looked upon as indicative of the relative extent to which stations are being built in various parts of the country.

Cape Girardeau, Mo. — Continental Oil Co., service station.
Booneville, Mo.—Standard Oil Co., greasing station.
Pawhuska, Okla.—Mid-Continent Petroleum Corp., filling station.
Townsend, Mont.—Shell Oil Co., distributing station.
Glendive, Mont.—Montana Motor Co., filling station.
Lamar, Mo.—Ed Hylton, filling station.
Columbus Junction, Ia.—Jesse George, service station.
Sioux City, Ia.—Hawkeye Paper Stock Co., filling station.
Minneapolis, Minn.—Aug. Sjogren, filling station.
Plummer, Minn.—Red Lake Falls Oil Co., filling station.
Wamego, Kan.—Phillips Petroleum Co., filling station.
Wamego, Kan.—Skelly Oil Co., filling station.
Corning, Ia.—Standard Oil Co., service station.
Manchester, Ia.—Skelly Oil Co., gas plant.
Hermitage, Ark.—Standard Oil Co., filling station.
La Crosse, Kan.—R. C. Warnock, service station.
Brookings, S. D.—Standard Oil Co., filling station.
Minneapolis, Minn.—Pure Oil Co., filling and greasing station.
Minneapolis, Minn.—Blau Oils, Inc., filling station.
Oneida, N. Y.—G. D. Hermann & Sons, Inc., filling station.
Norman, Okla.—Cities Service Oil Co., service station.
Miltonvale, Kan.—Shell Petroleum Corp., service station.
Ft. Scott, Kan.—H. L. Stout, filling station.
Caruthersville, Mo.—Phillips Petroleum Co., filling station.
Newport, Ark.—Standard Oil Co., filling station.
Albuquerque, N. M.—J. C. Calhoun, filling station.
McPherson, Kan.—Standard Oil Co., service station.
Poplar Bluff, Mo.—Continental Oil Co., filling station.
Kent, O.—W. F. Paulus, filling station.
Willshire, O.—Walter Scott, filling station.
Manchester, Ia. — Mid-Continent Petroleum Corp., filling station.
Boone, Ia.—A. R. Crary, filling station.
Waukon, Ia.—Joe White, service station.
Canby, Minn.—Shell Petroleum Corp., bulk station.
Norwood, Minn.—White Eagle Oil & Refining Co., filling station.
Mansfield, O.—Refiners Oil Co., filling station.
Lima, O.—Firestone Tire Stores, Inc., service station.
Columbus, O.—Pure Oil Co., service station.
Minneapolis, Minn.—Mrs. Sam Cull, filling station.
St. Cloud, Minn.—John Luckemeyer, filling station.
St. Cloud, Minn.—John Wheeler, filling station.
Marquette, Mich.—K. P. Hornbogen & D. P. Hornbogen, service station.
Mooreton, N. D.—C. J. Pelzl, A. F. Evenson & L. McDougall, filling station.
Sheridan, Wyo.—Standard Oil Co., warehouse and filling station.
Boulder, Colo.—Standard Oil Co., filling station.
Scandia, Kan.—H. Mahan & A. Cardwell, service station.
Windom, Minn.—Pioneer Oil Co., service station.
Albuquerque, N. M.—H. A. Sterner, filling station.
Shakopee, Minn.—Standard Oil Co., service station.
Muscatine, Ia.—Fred Giesler, filling station.
Sauk Rapids, Minn.—Fremie Arensberger, service station.
Lakota, N. D.—Farmers Union, bulk station.
Winona, Minn.—C. A. Ross, service station.
Minneapolis, Minn.—Alex Milleon, filling station.
Rochester, Minn.—Home Oil Co., filling station.
Rochester, Minn.—Olmstead County Oil Co., service station.
Eagle Grove, Ia.—Shell Petroleum Corp., filling station.
Ft. Smith, Ark.—Edith W. Stegall, filling station.
Beaumont, Tex.—Gulf Refining Co., filling station.
Bentonville, Ark.—Mid-Continent Petroleum Corp., filling station.
Sumner, Ia.—Robert and Harold Bathke, filling station.
Carthage, Mo. — Mid-Continent Petroleum Corp., service station.
Stewart, Minn.—White Eagle Oil & Refining Co., filling station.
International Falls, Minn.—Shell Petroleum Corp., bulk and filling stations.
Sac City, Ia.—Ralph Herrold, filling station.
Ord, Neb.—Ord Co-op Oil Co., filling station.
Newport, Ark.—Standard Oil Co., filling station.
Amarillo, Tex.—O. T. Nelson, filling station.
Chickasha, Okla.—Clark Trammell, filling station.
Port Columbus, O.—Standard Oil Co., filling station.
Foley, Minn.—Shell Petroleum Corp., filling station.
Park Rapids, Minn.—Shell Petroleum Corp., service station.
Willmar, Minn.—Pennock Oil Co., service station.
Glenwood, Ia.—D. D. Wheeler, filling station.
Eldora, Ia.—Glen Sheldon, service station.
Corning, Ia.—Mid-Continent Oil Co., service station.
Minneapolis, Minn.—Gold Seal Oil Co., bulk station.
Albert Lea, Minn.—Freeborn County Oil Co., filling station.
Wakefield, Mich.—John Simonson, filling station.
La Crosse, Wis.—The Texas Co., bulk station.
East Abington, Va.—Gulf Refining Co., distributing station.
Albuquerque, N. M.—Magnolia Petroleum Co., filling station.
Beaumont, Tex.—Gulf Refining Co., filling station.
El Paso, Tex.—H. L. Hussmann, service station.
Beeville, Tex.—Gulf Refining Co., filling station.
Jackson, Mo.—J. R. Bowman, filling station.
Sharon Springs, Kan.—Lee Carter, filling station.
Xenia, O.—H. E. Schmidt, filling station.
Kent, O.—W. F. Paulus, filling station.
Blackwell, Okla.—Mid-Continent Petroleum Corp., filling station.
Waterloo, Ia.—S. D. Brown, filling station.
Forrest City, Ark.—The Texas Co., filling station.
McCook, Neb.—Independent Gas & Oil Co., filling station.
Waterloo, Ia.—Cities Service Oil Co., service station.
Nevada, Mo.—Mid-Continent Petroleum Corp., filling station.
Pueblo, Colo.—Standard Oil Co., bulk station.
Omaha, Neb.—National Refining Co., service station.
Humboldt, Ia.—Webster & Humboldt Corp., service station.
Las Animas, Colo.—Golden Rule Oil Co., filling station.
Orange, Tex.—Shell Petroleum Corp., bulk station.
Paris, Ark.—Transcontinental Oil Co., filling station.
Dayton, Ia.—Ed Larson, service station.
McCook, Neb.—Independent Gas & Oil Co., filling station.
Waterloo, Ia.—Cities Service Oil Co., filling station.

ADVERTISING PAGES REMOVED

Firestone Service Store in La Salle square, Providence, R. I., a station that is averaging 300,000 gallons of gasoline a year, its manager says

How Firestone Sells 600,000 Gallons A Year at Two Stations

By M. S. Sullivan

PROVIDENCE, R. I.

FIRESTONE SERVICE STORES, INC., has two one-stop stations in Providence. Each is selling approximately 300,000 gallons of gasoline a year—600,000 gallons at the two stores. Here is the way it is done, in the words of Victor D. Howard, president and general manager of the Providence stores:

"Of prime importance is a very central location. The more central the station is located, the bigger the volume of business.

"Many gasoline retailers shy at locations in the centers of medium and large cities because such locations are so expensive. They leave these to department, jewelry and other retailers. That's where they often pass up a good volume project.

"We have two stations as near the city's center as we can get. For our newest location in La Salle square we had to buy several small buildings. But we have a location by which thousands of all kinds of motor vehicles pass each day. That is one of our biggest merchandisers. The station borders on three streets with four entrances, two from LaSalle square, one of the city's largest and busiest street intersections.

"When you get such a location, providing you do business as you should, you can't help but get a good volume.

"We carry several kinds of gasoline which attracts a wide range of motorists. People get used to one kind of gas, and they'll wait until the last 'gun is fired' before they tank up with another kind. The sight of several kinds of pumps speeds selection of our station, we believe.

"After the motorist has selected and driven into a station to buy gasoline, he wants service. In spite of the fact that he may be going nowhere in particular, he gets the idea he's in a hurry. We try to give almost instant gasoline service. We employ 24 men at both stations which gives us enough men for each service department and keeps our pumps well covered.

"It has always been our policy to have a better type of gasoline salesmen than the average. Here again, as with the location question, gasoline retailers are inclined to look for the cheapest help, believing they keep down expenses. They may keep expenses down, but also keep sales down.

"It takes a good salesman to sell anything—including gasoline. It's good salesmanship to sell five or eight gallons of gasoline when the person orders one or possibly two gallons. It also takes good salesmanship to sell that customer the idea of our stations for gasoline. By that I mean the making of regular customers, increasing the return of transient buyers and winning the so-called 'shoppers.'

"Any person can put five gallons of gasoline into a tank but it takes the best of salesmanship to bring that person back again, to make the shopper into a regular patron, and to impress the tourist and transient enough to remember our stations again when they're in town.

"We pay our salesmen better than the average but we more than get it back in increased business and higher sales. Each salesman receives a definite salary although we have now started a bonus system whereby each receives a bonus at the end of the year in proportion to our profits for the year."

To stimulate sales, a contest is run each month between the two stations. This, of course, takes in all departments. Each station is given a quota, based upon its previous record. Time of the year, business conditions, weather and such are considered. The station that goes farthest ahead of its quota is the winner and its salesmen receive a gift.

Under each station quota as a whole, each separate department has a proportionate sales figure to reach. Thus the gasoline section of each store has a certain quota each month. In short, informal talks and even daily greetings, Mr. Howard keeps the quota constantly before his salesmen.

This, he states, has done much to keep sales high and going higher

Women's rest and smoking room in the La Salle Square station of Firestone Service Stores, Inc., at Providence, R. I.

each month. It makes the salesmen take notice of the amount of business they're doing. It also sets them to thinking how they can sell more gasoline—and that's just what the management wants.

"We try," he said, "to bring it home to each man how he himself can improve his salesmanship and thus to sell more gasoline. It really is the basis of our large sales record in a way because these are the men who meet and make our customers.

"One little courtesy that our men have followed up with good results, is returning lost registration plates or licenses. With so many trucks and motor cars passing here daily, there is often a registration plate that has been lost. Our men pick them up, and we find out from the motor vehicle department of the state to whom they belong.

"Our man telephones the owner, saying that the plate has been found and that it will be held for him. If the person has no telephone, we send a postal card or a letter explaining that we have the plate.

"The result? The car owner usually calls soon for the plate. Our gasoline salesman gets it for him and attaches it.

"This little courtesy has saved the motorist a couple of dollars, and he is naturally much pleased and favorably impressed with our station. Seldom does such a motorist leave the station without buying gasoline. Here again comes into play the salesmanship of our men which in many cases makes that motorist into a regular patron."

The Firestone Service Stores have a contract with the American Automobile Association through which they actually get many new gasoline customers. A person out on the road with a flat tire may call for AAA help. A service truck goes out, changes the tire, and in most cases gets the repair job on the tire. When calling for the tire the motorist often buys gasoline. In fact, Mr. Howard states, many of their best regular customers were gotten from these contacts.

The stations are advertised in many ways—by their cleanliness and appearance, by large electric signs, by newspaper advertising, by copy in the local Chamber of Commerce and local automobile magazines and by distributing some advertising novelties.

Gasoline sales at these service stores are pushed just as much as possible for they have been found to be the best of leaders for the entire business.

Mr. Howard says their whole business has grown in proportion to their gasoline sales because people met at the pumps become regular customers of other services.

Selling around 300,000 gallons of gas at each station yearly is a profit in itself, but considering gasoline largely as a leader for the rest of the business, it becomes indeed very profitable.

Both service stores have attractive rest and smoking rooms for women motorists which brings to them many shoppers and theatregoers.

At the first established station, in Dryer street, some space is available for parking Many women plan to leave their cars for a washing, greasing or such while they are shopping or while at the theatre. They usually refuel before leaving the station.

New Equipment

The Benjamin Electric Mfg. Co., Des Plaines, Ill., has put out a bulletin on its new Duo-Service floodlight. It is a combination floodlight projector and diffusing reflector for outdoor use, particularly recommended for service stations, service areas and driveways. Among the advantages of this two-service floodlight are uniformity of general illumination of ground area, and uniformity of general lighting of ground area simultaneously floodlighting to a higher intensity an area or horizontal surface within or close to the area of general illumination.

A special highly polished metal projector of high reflecting value produces a floodlighting beam of 25,000 candlepower, centering immediate attention on the object or area to be emphasized. The steel reflector is said to have wide general lighting coverage.

* * *

The Almo Corp., Newark, N. J., is putting on the market an upper motor lubricating oil, known as Del-Jay Un-A-Vers-Ol, which, when mixed with gasoline, is claimed to reduce knocking and carbon formation. This oil also serves other lubrication purposes about a car.

* * *

The Union Metal Mfg. Co., Canton, O., makers of metal service stations, metal sign standards and floodlighting equipment, has published a folder on its equipment in preparation for spring housecleaning at stations.

It illustrates and describes its ornamental service stations of heavy steel, made in many designs, its metal buildings for greasing work, fluted steel lighting and sign standards, and tells how floodlighting increases after-dark profits by making the station stand out among its "more poorly dressed neighbors."

* * *

E. I. DuPont de Nemours & Co., Inc., Wilmington, Del., has added what it calls its No. 7 super-lustre cream for rubbing on automobile and furniture finishes after they have been cleaned and polished. It fills the pores and leaves a dry, hard, transparent film of brilliance. The film lasts for months, the company says, keeps a car shining and attractive and protects the finish against sun, rain, wind, and other elements.

The new product is a soft, white paste made from an emulsion of waxes, oils and other ingredients.

Increase Sales and Profits with this well-known line

This New Selling Plan Gives You

8 KEYS TO A YEAR 'ROUND BUSINESS

HERE'S the solution to that old-time problem which has always faced distributors and dealers in the oil industry who wish to make EVERY month a PROFITABLE month.

The new Amalie merchandising plan is the solution. It puts in your hands 8 master selling keys that open new profit doors, and keep them open the year around. This successful plan enables you to sell profitably ALL of the time by bringing to you a complete line of automotive lubricants that are in demand from New Year's to New Year's. Every customer becomes a prospect for many products where you sold only one before. Your time is saved, your overhead reduced, your capital not tied up.

The Amalie plan is so unusual that you should investigate it without further delay. Many have already investigated to their advantage. So, begin to make more money right now by sending for full particulars.

Amalie Division N.P.N.-6-4
L. Sonneborn Sons, Inc.,
114 Fifth Ave., New York, N. Y.

We are interested in your Amalie Merchandising plan. Please send additional information.

Company Name .....

Address .....

City and State .....

Territory Covered.....

AMALIE DIVISION

L. SONNEBORN SONS, Inc., 114 Fifth Ave., New York

REFINERIES: Franklin, Pa., and Petrolia, Pa.

Oil Industry Supports Eighty Active Associations

CLEVELAND, May 29.—What a thriving part association activity has become in the American industry, is indicated in the large number of associations within the oil industry.

There are 80 important and active oil associations in this country, a recent check-up by NATIONAL PETROLEUM NEWS reveals. A list of these associations was published on page 108 of the April 9 issue.

Outside of the national, state and territorial associations for oil producers, refiners and marketers, there are numerous others, such as organizations for royalty owners, tank car operators, pipe line companies, technical men and other individual groups of men specializing in some one branch of the industry.

Nor does this figure include all the many small regional associations that have sprung up during the past two or three years, nor all of the petroleum clubs that exist in many states and cities, nor local geological or engineering societies, nor the various chapters and divisions of such associations as the American Petroleum Institute.

If all such organizations were added to the number, it would run well over 100.

The national producer associations are: American Association of Petroleum Geologists; American Institute of Mining & Metallurgical Engineers, Independent Petroleum Association of America, recently organized by Wirt Franklin, the National Association of Independent Oil Producers and the National Oil Scouts of America. There are also the important regional associations such as the Mid-Continent Oil & Gas Association, Rocky Mountain Oil & Gas Association and the Rocky Mountain Association of Petroleum Geologists.

The American Petroleum institute and the International Petroleum Congress are not included in this count due to the wide scope of their activity.

The two national refiner associations are the Western Petroleum Refiners Association and the National Petroleum Association. Into this classification might also fall the petroleum divisions of the American Chemical Society and the American Society for Testing Materials.

The national oil jobber and marketer association is the Independent Oil Men of America.

The Natural Gasoline Association of America is the only natural gasoline organization with national membership.

The only oil producing state that has no jobber or marketer association is Louisiana. There are in all 30 states that support such jobber and marketer associations, outside of those states which are included in the Rocky Mountain Independent Oil Men's Association.

Thirteen states have full-time paid secretaries for their marketer and jobber associations. Another one will join these ranks when the Kentucky Petroleum Marketers Association finds a suitable secretary-treasurer.

The most recently organized marketer association is the Alabama Oil Men's Association, Birmingham, of which S. C. Klein is executive secretary.

What was formerly the Greater Chicago Oil Men's Club is now the Chicago Oil Men's Club.

In California was recently organized the Independent Petroleum Association of California, the California "subsidiary" of the Wirt Franklin association of Ardmore, Okla. Ivey C. Clark, 240 E. Main St. Compton, Calif., is secretary. The three other oil associations in California are the Independent Oil Producers Agency, the California Oil & Gas Association and the California Natural Gasoline Association, all having offices in Los Angeles.

Oklahoma leads all other states in the number of oil associations within its boundaries. It has nine which function state-wide or in a large part of the state. Five of these are producer associations, two jobber, and two miscellaneous. Twelve national or otherwise important oil associations have their headquarters at Tulsa.

The Independent Oil Association of Oklahoma succeeded in 1928 the Okmulgee District Oil & Gas Association. Charles I. O'Neill, secretary, says that this association functions principally in five counties of the central Oklahoma field, that it was organized in 1921 and now has 200 members.

The other important producer associations in Oklahoma are the National Association of Independent Oil Producers, of which William H. Gray is president and H. A. Farley secretary; the Independent Petroleum Association of America, of which Wirt Franklin is head and which was thrown into national prominence lately because of its fight for an oil tariff in Washington; the Mid-Continent Oil & Gas Association; and the Osage Oil & Gas Lessees Association.

There is also the Tulsa Purchasing Agents Association of which H. M. Cosgrove is secretary, and the Technical Club of Oklahoma, having A. W. Burket as its secretary.

The Oklahoma jobber and marketer associations include the Oklahoma Petroleum Marketers Association, which recently succeeded the Oklahoma Oil Jobbers Association. Also the Oklahoma Oil Marketers, Inc., of Enid.

The new president of the Independent Oil Men's Association of Massachusetts is W. C. O'Meara, of the Quincy Oil Co., Quincy, Mass. This association has no permanent nor paid officers.

The Maine Independent Oil Dealers Association, headed by Theodore E. Emery, president of the Kennebec Oil Co., August, meets regularly the second Wednesday of each month at different points in the state each time. F. C. McKenney, Auburn, Me., is secretary.

Succeeding Trell Yocum as executive secretary of the American Oil Burner Association and the Oil Heating Institute at 342 Madison Ave., New York, is H. F. Tapp, assisted by C. F. Curtin.

K. R. Boyes is the new secretary of the American Gas Association, succeeding Alexander Forward.

The Rocky Mountain Association of Petroleum Geologists gathers for luncheon meetings each first and third Thursday of the month at Auditorum Hotel, Denver. W. A. Waldschmidt is secretary and J. Harlan Johnson, of the Colorado School of Mines, Golden, Col., is president.

The "Independent" was recently omitted from the Virginia jobbers association name. It is now the Virginia Oil Men's Association, A. L. Tenser is secretary and Paul P. Hunter, Elmwood Service Station, Roanoke, is president.

H. E. Browne, of the Prairie Pipe Line Co., Independence, Kan., who is secretary of the Petroleum Industry, Electrical Association, has this to say regarding that association:

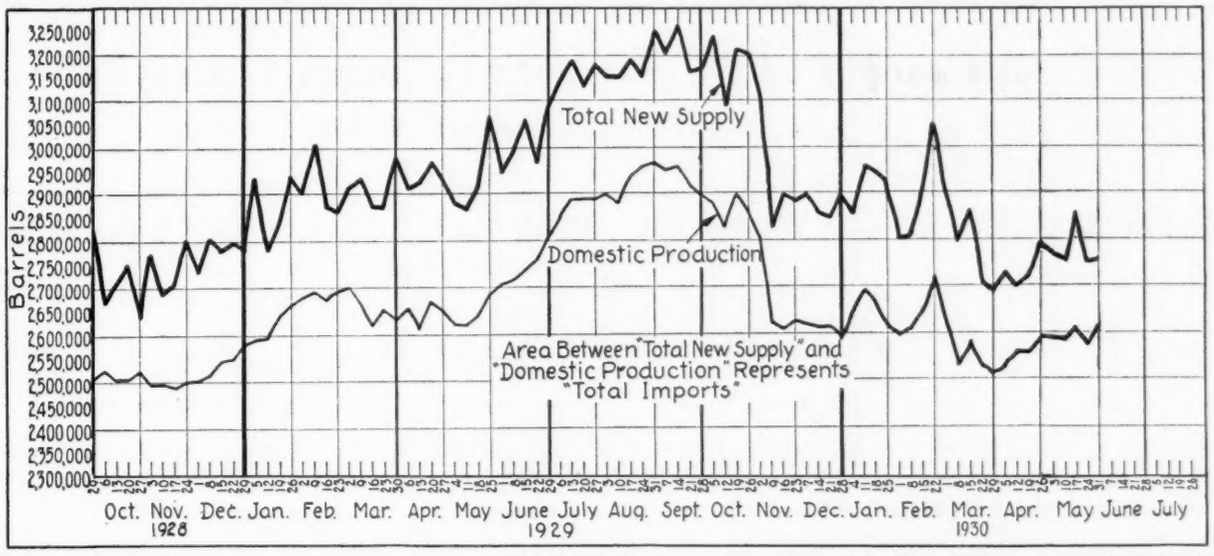
"The Petroleum Industry, Electrical Association was organized at Fort Worth, Tex., March, 1928, with 14 companies represented. At the present time the association is comprised of 19 companies, all of which are major oil, gas and pipe line companies.

"The heads of each company's electrical department are the only ones represented, such as pertaining to telegraph, telephone or electrical power, and each company has a second representative."

F. S. Leonard, Shell Pipe Line Corp., St. Louis, was recently elected president.

ADVERTISING PAGES REMOVED

Daily Average Crude Oil Production and Imports



By Telegraph—Daily average gross output, by fields in U. S., for week ending with dates below as compiled by A.P.I.

PRODUCTION SUMMARY

	May 31	May 24
Production east of Rockies	2,004,350	1,960,800
Increase		43,550
Total production in U. S.	2,609,450	2,579,500
Increase		29,950
Crude oil imports	143,430	164,430
Decrease		21,000
Total new crude supply	2,752,880	2,743,930
Increase		8,950

OKLAHOMA

	May 31	May 24
Allen Dome	24,450	20,600
Asher	1,850	2,000
Blackwell	3,400	3,400
Bowlegs	28,600	21,700
Braman	3,500	3,500
Bristow-Slick	15,600	15,900
Burbank	16,450	16,450
Carr City	7,200	7,650
Cromwell	7,600	7,600
Cushing	13,900	13,900
Davenport	1,200	1,200
Duncan District	8,300	8,300
Earlsboro	38,450	37,550
East Earlsboro	24,550	31,050
Fox	1,150	1,150
Garber	4,600	4,600
Graham	3,550	3,550
Healdton	11,900	11,900
Hewitt	7,100	7,000
Hubbard	1,600	1,600
Konawa	16,450	19,350
Little River	49,650	37,800
Little River, East	15,750	18,500
Logan County	5,800	5,900
Maud	3,900	4,850
Mission	9,450	9,350
North Okmulgee	10,750	10,250
Oklahoma City	126,650	114,950
Osage (Outside Burbank)	26,150	26,100
Papoose	2,800	2,800
Pearson	550	600
Sasakwa	8,900	9,950
St. Louis	27,450	35,250
Scholem-Alechem	13,350	13,400
Searight	10,650	11,650
Seminole	28,000	22,150
Seminole, East	4,700	3,300
South Okmulgee	7,250	6,250
Thomas	750	750
Tonkawa	7,250	7,250
Wewoka	3,650	3,650
Yale-Jennings	8,050	8,150
Others	68,200	67,700
Total, Oklahoma	681,050	660,500
Increase		20,550

KANSAS

Augusta-Fox Bush	3,000	3,000
Churchill	4,050	4,050
El Dorado-Towanda	14,100	14,100
Florence-Covert	800	800
Greenwood County	20,450	20,500
Oxford	2,900	2,900
Peabody-Elbing	3,250	3,200
Rainbow Bend	1,050	1,050
Russell	3,550	3,500
Sedgwick County	19,400	18,950
Voshell	23,700	23,100
Others	38,800	38,000
Total, Kansas	135,050	133,150
Increase		1,900

NORTH LOUISIANA

Caddo, light	6,900	9,550
Caddo, heavy	2,050	2,850
Cotton Valley	2,200	2,200
De Soto and Red River	3,050	3,200
Haynesville	4,600	4,600
Holly	1,700	750
Homer	3,600	3,600
Sarepta Carterville	3,350	3,250
Urania	5,100	5,050
Zwolle	2,900	3,250
Others	1,650	1,700
Total, North Louisiana	37,100	40,000
Decrease		2,900

ARKANSAS

Champagnolle	3,800	3,850
El Dorado	4,050	4,050
Lisbon	1,000	1,000
Nevada	900	950
Smackover, light	5,150	4,400
Smackover, heavy	36,700	29,150
Stephens	950	950
Others	550	550
Total, Arkansas	53,100	44,900
Increase		8,200

TEXAS (OUTSIDE GULF COAST)

Panhandle District

Carson County	9,350	9,300
Gray County	79,000	72,800
Hutchinson County	23,300	23,300
Wheeler County	550	700
Others	500	500
Total, Panhandle Texas	112,700	106,600
Increase		6,100

North Texas

Archer County	19,350	19,300
Burkburnett	8,400	8,400
Electra	11,300	11,300
Iowa Park and K. M. A.	5,900	5,800
Montague-Cooke	10,400	10,400
Wilbarger	25,600	24,450
Others	2,000	2,000
Total, North Texas	82,950	81,650
Increase		1,300

West Central Texas

Brown County	6,750	6,850
Callahan County	3,950	4,000
Coleman County	4,150	4,200
Eastland-Desdemona	5,850	5,900
Jack County	3,800	3,800
Palo Pinto County	600	650
Shackleford County	6,650	6,700
Stephens County	6,100	6,100
Throckmorton County	1,100	1,100
Young County	17,800	17,500
Others	1,900	1,200
Total, West Central Texas	58,650	58,000
Increase		650

West Texas

Crane and Upton Counties	42,300	42,600
Crockett County	2,100	2,100
Ector County	15,100	13,900
Howard County	34,600	35,650
Jones County	1,300	1,400
Mitchell and Scurry Counties	2,350	2,400
Reagan County	17,500	16,300
Winkler County	70,700	70,900
Yates	113,700	113,900
Balance Pecos County	4,300	4,000
Others	3,400	2,800
Total, West Texas	307,350	305,950
Increase		1,400

East Central Texas

Boggy Creek	3,900	3,050
Corsicana-Powell	5,800	5,900
Currie	250	250
Mexia	4,250	4,350
Nigger Creek	200	200
Richland	200	200
Van Zandt	22,700	21,600
Wortham	800	850
Total, East Central Texas	38,100	36,400
Increase		1,700

Southwest Texas

Dale	250	300
Darst Creek	27,400	27,000
Laredo District	7,900	8,000
Luling	9,100	9,250
Lytton Springs	800	800
Salt Flat	20,950	21,500
Somerset	1,100	1,200
Others	1,500	1,600
Total, Southwest Texas	69,000	69,650
Decrease		650
Total, Texas (Outside Gulf Coast)	668,750	658,250
Increase		10,500

GULF COAST

Coastal Texas

Barbers Hill	22,550	20,000
Batson	1,100	1,100
Big Creek	4,700	3,900
Blue Ridge	1,800	1,800
Boling	1,150	1,050
Damon Mound	600	600
Esperson	2,400	2,100
Fannett	900	1,100
Goose Creek	4,400	4,400
Hull	9,850	10,200
Humble	16,750	18,200
North Dayton	1,600	350
Orange County	2,350	1,900
Pettus	3,900	3,700
Pierce Junction	9,500	9,500
Port Neches	1,600	1,650
Raccoon Bend	11,950	12,000
Refugio County	36,200	37,400
Saratoga	1,100	1,100
Somerville	1,700	1,700
Sour Lake	2,350	2,350
South Liberty	4,500	4,400
Spindletop	16,450	15,550
Sugarland	11,800	12,100
West Columbia	5,400	5,400
Others	6,800	6,800
Total, Coastal Texas	183,400	180,350
Increase		3,050

Coastal Louisiana

East Hackberry	1,900	1,900
Old Hackberry	1,250	1,300
Edgerly	600	600
Evangeline	750	800
Lake Barre	800	800
Lockport	2,550	2,400
Port Barre	3,800	2,000
Sulphur Dome	3,900	5,000
Vinton	4,000	4,100
Others	2,900	2,150
Total, Coastal Louisiana	22,450	21,050
Increase		1,400
Total, Gulf Coast	205,850	201,400
Increase		4,450

ROCKY MOUNTAIN

Wyoming

Big Muddy	2,050	2,050
Elk Basin	750	800
Grass Creek	2,150	2,500
Labarge	2,300	2,000
Lance Creek	100	150
Lost Soldier	3,200	3,050
Oregon Basin	4,700	4,700
Rock River	2,100	2,100
Salt Creek	31,650	29,450
Others	5,550	4,800
Total, Wyoming	54,550	51,600
Increase		2,950

Montana

Cat Creek	1,200	1,150
Pondera	2,600	2,500
Sunburst	5,800	5,600
Others	50	100
Total, Montana	9,650	9,350
Increase		300

Colorado

Florence	800	600
Fort Collins	1,400	1,350
Moffat (Craig)	1,000	1,000
Others	1,450	1,550
Total, Colorado	4,650	4,500
Increase		150

New Mexico

Artesia	750	750
Balance Lea and Eddy Counties	14,950	17,800
Hogback	350	350
Rattlesnake	1,150	1,150
Table Mesa	100	100
Others	900	900
Total, New Mexico	18,200	21,050
Decrease		2,850
Total, Rocky Mountain	87,050	86,500
Increase		550

CALIFORNIA

Dominguez	10,300	10,400
Elwood-Goleta	49,000	47,000
Huntington Beach	28,500	28,600
Inglewood	17,300	17,200
Kettleman Hills	15,300	15,300
Long Beach	91,700	97,000
Midway-Sunset	65,500	65,500
Santa Fe Springs	112,000	117,000
Seal Beach	20,500	22,700
Ventura Avenue	47,000	49,000
Others	148,000	149,000
Total, California	605,100	618,700
Decrease		13,600

EASTERN

(Not including Michigan)	126,000	125,200
Increase		800

MICHIGAN

Mt. Pleasant	6,750	6,700
Muskegon	3,450	4,000
Saginaw	200	200
Total, Michigan	10,400	10,900
Decrease		500

Compilation Of Mid-Continent Refinery Operations

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National Petroleum News

Mid-Continent Refinery Operations Week Ended May 30 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	West Texas	North La.-Ark.	Total Week Ended May 30
Plants Reporting	12	29	25	15	12	93
Da. Av. Cap. (bbls.)	94,500	161,700	106,100	82,000	77,000	521,300
Da. Cracking Capacity	30,700	52,600	17,200	5,000	22,700	128,200
Da. Av. Crude Runs	62,642 — 7.7	123,153 — 2.2	71,062 — 1.3	42,225 — 4.4	56,909 + 10.4	355,991 — 1.5
Da. Av. Other Oils	8,216 — 13.2	3,515 + 12.6	2,589 + 47.6	2,474 — 15.3	3,414 +240.0	20,208 + 10.6
GASOLINE—Gallons						
Stocks, May 23	31,543,000	77,453,000	26,423,000	11,061,000	15,665,000	162,145,000
Prod. 5-23 to 5-30	11,322,000 — 6.1	18,689,000 — 6.1	9,513,000 — 5.7	4,157,000 — 2.3	6,333,000 + 35.1	50,014,000 — 1.9
Ship. 5-23 to 5-30	11,014,000 + 7.2	19,281,000 + 3.0	8,689,000 — 6.6	2,695,000 — 33.1	5,295,000 + 22.3	46,974,000 + 7.0
Stocks, May 30	31,851,000 + 1.0	76,861,000 — 0.8	27,247,000 + 3.1	12,523,000 + 13.2	16,703,000 + 6.6	165,185,000 + 1.9
Ratio Sales to Prod.	97.3%	103.2%	91.3%	64.8%	83.6%	93.9%
KEROSENE—Gallons						
Stocks, May 23	9,246,000	9,406,000	3,587,000	25,000	1,429,000	23,693,000
Prod. 5-23 to 5-30	1,918,000 — 17.4	3,000,000 + 4.7	1,453,000 — 11.0	.....	665,000 + 58.0	7,036,000 — 2.9
Ship. 5-23 to 5-30	2,117,000 + 6.3	2,342,000 + 3.2	1,562,000 + 0.4	.....	565,000 + 1.4	6,586,000 + 3.1
Stocks, May 30	9,047,000 — 2.2	10,064,000 + 7.0	3,478,000 — 3.0	25,000	1,529,000 + 7.0	24,143,000 + 1.8
Ratio Sales to Prod.	110.4%	78.1%	107.5%	.....	85.0%	93.6%
STOVE DISTILLATE—Gallons						
Stocks, May 23	3,896,000	2,796,000	275,000	190,000	664,000	7,821,000
Prod. 5-23 to 5-30	259,000 — 28.3	647,000 + 9.1	93,000 — 40.8	176,000 + 49.2	70,000 + 66.7	1,245,000 — 2.0
Ship. 5-23 to 5-30	89,000 — 19.8	732,000 + 17.9	124,000 — 30.0	130,000 — 27.0	8,000 — 84.9	1,083,000 — 5.0
Stocks, May 30	4,066,000 + 4.4	2,711,000 — 3.0	244,000 — 11.3	236,000 + 24.2	726,000 + 9.3	7,983,000 + 2.0
Ratio Sales to Prod.	34.4%	113.1%	133.3%	73.9%	11.4%	87.0%
GAS OIL—Gallons						
Stocks, May 23	5,557,000	43,436,000	2,669,000	4,620,000	7,965,000	64,247,000
Prod. 5-23 to 5-30	1,245,000 — 4.7	2,318,000 + 24.5	1,724,000 +224.7	450,000 — 14.2	2,595,000 + 36.1	8,332,000 + 35.9
Ship. 5-23 to 5-30	649,000 + 4.2	691,000 — 44.9	1,117,000 +115.6	561,000 + 2.9	2,056,000 — 25.6	5,074,000 — 11.0
Stocks, May 30	6,153,000 + 10.7	45,063,000 + 3.7	3,276,000 + 22.7	4,509,000 — 2.0	8,504,000 + 6.8	67,505,000 + 5.1
Ratio Sales to Prod.	52.1%	29.8%	64.8%	124.7%	79.2%	60.9%
FUEL OIL—Gallons						
Stocks, May 23	23,961,000	41,044,000	70,766,000	17,857,000	24,974,000	178,602,000
Prod. 5-23 to 5-30	4,966,000 — 4.0	6,990,000 — 2.9	7,702,000 —14.5	6,089,000 — 7.6	5,009,000 — 3.7	30,756,000 — 7.2
Ship. 5-23 to 5-30	4,634,000 — 4.0	6,274,000 + 9.2	7,406,000 — 0.01	3,646,000 — 32.7	6,240,000 + 10.0	28,200,000 — 3.0
Stocks, May 30	24,293,000 + 1.4	41,760,000 + 1.7	71,062,000 + 0.4	20,300,000 + 13.7	23,743,000 — 4.9	181,158,000 + 1.4
Ratio Sales to Prod.	93.3%	90.0%	96.1%	59.9%	124.6%	91.7%

Gasoline Produced by Various Methods, Week Ended May 30

	Kansas	% of Total	Oklahoma	% of Total	North & Cent. Texas	% of Total	West Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	6,425,000	56.7	12,469,000	66.7	6,284,000	66.1	3,808,000	91.6	2,189,000	34.6	31,175,000	62.3
Cracked	4,334,000	38.3	5,068,000	27.1	2,364,000	24.9	202,000	4.9	3,176,000	50.1	15,144,000	30.3
Natural	563,000	5.0	1,152,000	6.2	865,000	9.0	147,000	3.5	968,000	15.3	3,695,000	7.4
Total	11,322,000		18,689,000		9,513,000		4,157,000		6,333,000		50,014,000	

+ or — columns are % change over previous week.

Mid-Continent Refiners Reduce Crude Runs

Staff Special—By Telegraph
TULSA, June 2

MID-CONTINENT refiners reduced their crude runs to stills 5400 barrels daily average in the week ended May 30 according to reports gathered by this publication. As a result gasoline output was cut 970,000 gallons.

Gasoline shipments meanwhile increased 220,000 gallons but still were 3,000,000 gallons below the level of production. All reporting groups except Oklahoma showed an increase in stocks. Total reserves on May 30 were 165,185,000 gallons. At the current rate of demand this stock was sufficient to last 24.6 days without further manufacture.

Kansas and North Texas refiners reduced their stocks of kerosene while others showed some increase. The total added to storage for the group was 400,000 gallons although shipments increased 100,000 gallons. Dis-

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended May 30. Change in stocks figures from May 2.

GASOLINE

	Gallons
Production	202,826,000
Shipments	183,592,000
Net change in stocks	+19,234,000
Ratio sales to production	90.5%

KEROSENE

Production	28,935,000
Shipments	25,317,000
Net change in stocks	+3,618,000
Ratio sales to production	87.5%

STOVE DISTILLATE

Production	5,113,000
Shipments	3,937,000
Net change in stocks	+1,176,000
Ratio sales to production	76.9%

GAS OIL

Production	23,538,000
Shipments	22,983,000
Net change in stocks	+555,000
Ratio sales to production	97.6%

FUEL OIL

Production	135,399,000
Shipments	118,275,000
Net change in stocks	+17,124,000
Ratio sales to production	87.4%

tillate production was steady but shipments dropped a little causing a minor stock increase.

Stocks of gas oil increased 3,200,000 gallons and fuel oil stocks continued to increase when shipments dropped along with the decrease in production.

A. P. I. Appoints Three Marketing Committees

CLEVELAND, May 29.—Three new committees have been announced by Henry H. Dawes of the Pure Oil Co., head of the American Petroleum Institute Division of Marketing. One committee will consider the disposal of marketing wastes. A second committee will work in the interests of fire prevention in marketing and the third in the interests of safety in marketing.

O. H. Gundlach, Sinclair Refining Co., New York, is chairman of the committee on disposal of marketing wastes. D. V. Stroop, of the institute staff, is secretary and the members are: W. H. Correa, Standard Oil Co. of New York, New York, F. A. Epps, Tide Water Oil Co., New York; W. B. Hart, Atlantic Refining Co., Philadelphia; J. H. McEachern, Standard Oil Co. of California, San Francisco; George C. Morris, Pure Oil Co., Chicago; H. O. Nicholls, Richfield Oil Co. of New York, New York; G. F. Prussing, Union Oil Co. of California, Los Angeles; and R. A. Wotowich, Cities Service Co., New York.

Mr. Wotowich is chairman of the committee on fire prevention in marketing, with Mr. Stroop secretary. Members are: T. J. Callen, Jr., Wadhams Oil Co., Milwaukee; C. J. Cutting, Atlantic Refining Co., Philadelphia; C. A. Ellis, Standard Oil Co. of New York; F. A. Epps, Tide Water Oil Co., New York; H. B. Estep, Richfield Oil Co. of New York, New York; N. R. Grimshaw, Standard Oil Co. of Indiana, Chicago; O. H. Gundlach, Sinclair Refining Co., New York; H. H. Hall, Standard Oil Co. of California, San Francisco; Frank Harrison, Pure Oil Co., Chicago; R. C. Powell, The Texas Co., New York; G. F. Prussing, Union Oil Co. of California, Los Angeles; and H. J. Wilson, Associated Oil Co. of California, San Francisco.

R. E. Donovan, Standard Oil Co. of California, San Francisco, is chairman of the committee on safety in marketing. Mr. Stroop is secretary. Members are: C. C. Benedict, Standard Oil Co. of New York, New York; H. B. Estep, Richfield Oil Co., of New York, New York; N. R. Grimshaw, Standard Oil Co. of Indiana, Chicago, Ill.; Frank Harrison, Pure Oil Co., Chicago; J. G. Moxey, Atlantic Refining Co., Philadelphia; and G. F. Prussing, Union Oil Co. of California, Los Angeles.

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Maryland
Sherwood Bros., Inc., Baltimore
Massachusetts
Underhay Oil Company, Boston
Minnesota
W. H. Barber Company, Minneapolis
Fred G. Clark Company, Minneapolis
Crescent Oil Company, Minneapolis
Manhattan Oil Company, Minneapolis
Midwest Oil Company, Minneapolis
R. A. Hyde Oil Company, Pipestone
Battenfield Grease & Oil Company, Saint Paul
Northland Oil Company, Saint Paul
Missouri
Barnsdall Refining Company, Kansas City
Montana
Lincoln Oil Company, Great Falls
New York
Smith Oil Company, Inc., Lowville
Anglo-Mexican Petroleum Company, New York City
C. E. Mills Oil Company, Syracuse
Swan-Finch Oil Corp., New York City
Ohio
Du Bois Oil Company, Bellaire
The Ohio Grease Company, Loudonville
Sun Oil Company, Toledo
Arrow Oil Company, Wooster
Pennsylvania
Kendall Refining Company, Bradford
The Aero Gasoline Company, Inc., Erie
Jos. B. Berry Sons Company, Inc., Oil City
Sun Oil Company, Philadelphia
Thompson & Company, Pittsburgh
Industrial Oil & Grease Company, Warren
Virginia
The Texas Company, Norfolk
South Atlantic Oil Company, Norfolk
Topping Oil Company, Williamsburg
West Virginia
Ohio Valley Refining Company, St. Marys
Canada
McColl Bros., Ltd., Toronto, Ontario
Shell Company of Canada, Ltd., Toronto
Shell Company of Canada, Ltd., Montrea
North Star Oil and Refining Company, Winnipeg, Manitoba

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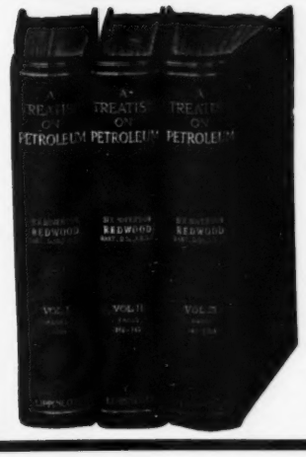

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Refinery - Tank Wagon Markets

National Petroleum News

Prices Lean Heavily Toward Down Side In Generally Quiet Markets

CLEVELAND, June 3

REFINED oil tank car markets generally ended May in the same apathetic state which they began the month. Except for some rather heavy deferred shipment buying of a commodity or two in a few districts of the Mid-Continent and in western Pennsylvania, activity was at low ebb. Prices of all oils leaned heavily toward the down side.

The previous week's surprise in retail markets was duplicated on May 27 when Atlantic Refining Co. announced that effective May 29 it would advance both tank wagon and service station prices of gasoline 1 cent throughout Pennsylvania and Delaware. Aside from this, changes in retail markets were entirely local. Advances and reductions about balanced.

Unfavorable motoring weather again was blamed for the inactivity of jobbers in the gasoline market. Even the prospects of rather heavy consumption over the Memorial Day week end failed to stimulate spot buying materially.

The inquiry for June gasoline was fairly active in most markets but still it was not up to normal. In the Mid-Continent and Chicago districts June gasoline sold at and near the lows of current prices while in the western Pennsylvania and eastern seaboard areas deferred shipment buying largely was at the tops of spot market price ranges.

Activity in local California tank car markets was at a standstill. Inquiries for bulk shipments both from domestic and foreign buyers were rather numerous but relatively high tanker rates prevented them from developing into actual business.

Lower prices for lubricating oils in the Pennsylvania market attracted a larger volume of buying than the trade had enjoyed the rest of the month. Prices remained unchanged in the Mid-Continent and along the Gulf Coast and buying continued light.

Foreign wax buying showed no improvement. Candle markets in the United Kingdom were in bad shape. Cheap Polish wax was said to be the disturbing factor. Refined waxes from Poland were being offered to European buyers at the same prices American sellers were asking for crude scale.

By Telegraph

TULSA, June 3.—Buyers for members of the Export Petroleum Association, Inc. were understood to have placed June orders Tuesday for approximately 1000 cars of 64-66, 375 e.p. gasoline. Price was based on posted price at the Gulf which gives refiners a netback of 7.25 cents, f.o.b. North Texas. Orders were placed in virtually all districts of the Mid-Continent.

U. S. Motor Hits 6.50 Cents at Chicago

Staff Special

CHICAGO, May 31

SOME improvement in spot gasoline buying was noted in the Chicago resale market during the last week in May, but it was not sufficient to prevent tank car prices from slipping to lower levels.

However, excellent motoring weather prevailed over the middle west on Memorial Day and many of the Chicago trade expressed the opinion that this would bring more active spot buying in the coming week. Several sellers reported a comparatively good business May 28 and 29 on U. S. Motor gasoline for shipment immediately following Memorial Day. A number of refiners reported an increase in gasoline demand from their contract customers.

Considerable interest was manifested in the June gasoline market. While many refiners were unwilling to sell for future shipment, a number of carlot marketers reported sales of U. S. Motor at 6.625 to 6.875 cents. They reported they were able to buy for resale in either Texas or Oklahoma at 6.50 cents for June delivery.

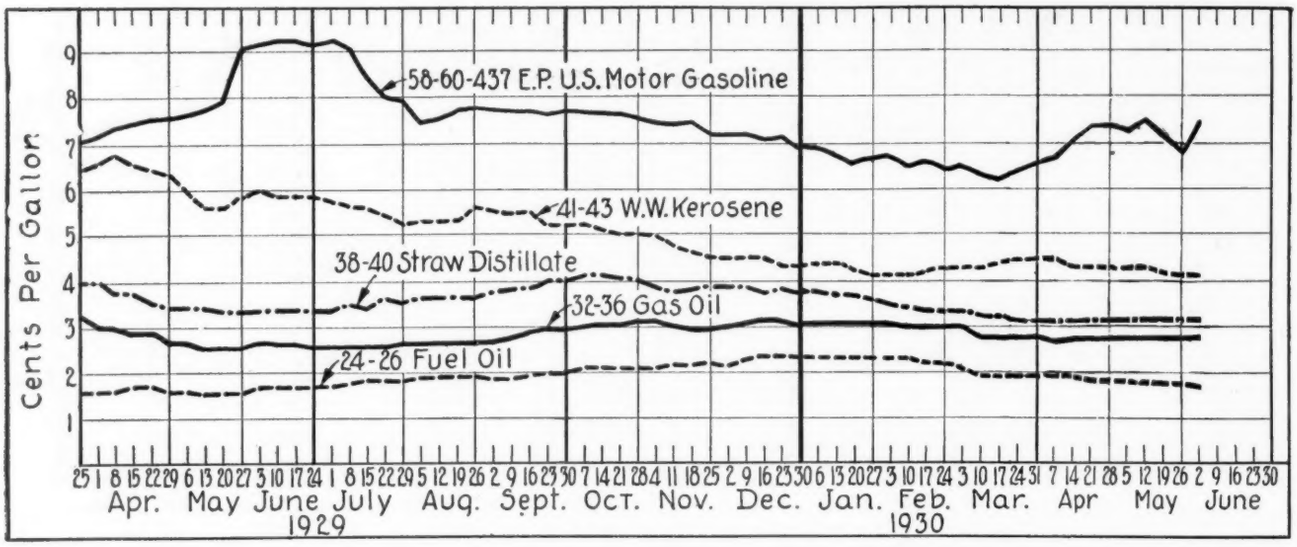
Spot gasoline prices were off about 0.125 cent over the week. Sales of U. S. Motor gasoline were reported mostly at 6.625 to 7 cents in the early days of the week, and at 6.50 to 6.875 cents later. An occasional spot sale was reported at 6.375 cents. Marketers generally reported they could buy either Oklahoma or Texas U. S. Motor freely at 6.375 cents and in some cases at 6.25 cents.

Some sales of U. S. Motor for prompt shipment, from an Illinois refinery into southwestern Ohio were reported at 9.75 to 10 cents delivered. A few sales of Motor for shipment into Ohio from the north Louisiana-Arkansas district were reported at 9.50 cents delivered. It was reported May 31 that a large Texas refiner had offered a considerable quantity of U. S. Motor gasoline to marketers at 6.125 cents, f.o.b. Group 3, for resale. Whether this was for prompt or over June shipment could not be learned.

Some 58-60, 437 e.p. gasoline which would not meet U. S. Motor specifications was being offered at 6.25 to 6.50 cents, Group 3 basis, for shipment from an Arkansas refinery. A few sales of this gasoline were reported at 9.35 cents delivered, at Cincinnati, Ohio.

Bids for supplying the Chicago post office with its gasoline requirements for the third quarter of 1930 were opened May 28. This contract called for approximately 300,000 gallons of U. S. Motor specification gasoline. The bids were on either a flat rate or based on the average tank car market of U. S. Motor gasoline, date of ship-

Current Prices of Principal Mid-Continent Refined Products


58-60-437 E.P. U.S. Motor Gasoline
41-43 W.W. Kerosene
38-40 Straw Distillate
32-36 Gas Oil
24-26 Fuel Oil
Cents Per Gallon
Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr May June
1929
1930

Prices shown are in Group 3 basis and extended to date shown in Refinery Market Tables Section of this issue

ment, as shown in the Chicago Journal of Commerce. The flat rate bids ranged from 6.75 cents per gallon over the three months to one of 8 cents.

The differential bids were as follows: average tank car, with maximum of 7.39 cents and 0.5 cent for handling; average tank car, maximum of 7.25 cents and 0.5 cent for handling; 0.125 cent below average tank car, maximum of 7.50 cents and 1-cent handling; 0.125 cent below average tank car, maximum of 7.75 cents and 0.5 cent handling; average tank car, maximum of 7.50 cents and 0.5 cent handling; 0.125 cent above average tank car, maximum of 6.625 cents and 0.5 handling; and average tank car, maximum of 6.75 cents and 0.5 cent for handling. The last two bids allowed no discount for cash, while the others extended 1 per cent in 10 days.

Spot demand for kerosene was light, although practically no change was noted in prices. Buyers reported 4 cents still was the bottom price for good quality 41-43 w.w. kerosene.

Distillate continued in fairly active demand for the season and prices of the 38-40 straw grade held at 3 to 3.125 cents. Sellers reported they had no trouble getting at least 3 cents for this product.

Buying of gas and fuel oils generally was light in all quarters. No change was apparent in prices. Several sellers said they believed these products were practically pegged for the summer at present price levels.

Occasional shower periods are forecast for the Standard of Indiana territory next week by the Chicago weather bureau. Temperatures will be mostly moderate.

Jobbers to Study Farmers Co-ops

CLEVELAND, May 31—The Ohio Petroleum Marketers Association has appointed a committee from its board of directors to study the activity of farmers Co-operative oil companies. The directors will examine how these agencies do business in various parts of the country for the purpose of determining how this competition can be met most effectively. Members of the committee are P. C. Conder, Indian Refining Co., Dayton, C. L. White, Shell Petroleum Corp., Lima, and G. H. Walker, Cities Service Oil Co., Cleveland.

Gulf Coast Lubes More Brisk

HOUSTON, June 2.—Approach of the season of greater consumption found the Gulf Coastal lubricant market somewhat quickened in tone at the end of May. There was no radical change, however, from conditions prevailing earlier in May. Prices were stationary on the several grades with no immediate prospect of change.

Shipments From Southern California

LOS ANGELES, May 28.—Bulk petroleum shipments from Southern California ports for week ended May 24 were as follows:

Destination	Crude	Gasoline	Diesel	Kerosene	Fuel	Gas-oil	Total
Pacific For.	126,529	88,571	47,484	129,335	211,396	.....	603,315
Atlantic Dom.	.....	224,132	.....	92,043	.....	.....	316,175
Atlantic For.	.....	193,000	.....	.....	.....	.....	193,000

Prices 10 Years Ago
May 31, 1920

	Oklahoma	Penna.
58-60 U. S. Motor	23.50–23.75c	26.00c
80-84 Natural	18.50–19.50c	.....
Kerosene (41-43 Okla.; 47 w. w. Pa.)	10.75–11.25c	16.00c
Fuel Oil (24-26 Okla.; 38-40 Pa.)	$3.40–$3.60	14.25–14.50c
Crude (Okla. 35-35.9)..	$3.50	$6.10
Chicago tank wagon		26.00c

Prices A Year Ago
June 3, 1929

	Oklahoma	Penna.
58-60 U. S. Motor	9.1920c	10.25–11.00c
Grade A Natural	7.50c	.....
Kerosene (Okla. 41-43; Pa., 47 w. w.)	6.00c	7.625–8.00c
Fuel Oil (Okla. 24-26; Pa. 36-40)	$0.675–$0.75	5.00–5.125c
Crude (Okla. 35-35.9)..	$1.40	$4.00
Chicago tank wagon		16.00c

Mid-Continent Refinery Markets

Gasoline Marks Time in All Districts

Staff Special
TULSA, May 31

THE Mid-Continent gasoline market marked time most of the last week of May as the trade generally waited for the Memorial Day holiday. The opinion generally was that the future of the gasoline market through June and possibly into July hinged largely on the gasoline consumption during the holiday and week end.

With only a half day of business following the holiday, it was too early at the time this was written to determine what effect the consumption would have on the tank car market. Reports from most sections of the Mid-Continent's normal marketing territory, however, indicated weather conditions were excellent for motoring.

Several sellers said May 31 that they had noted some increase in spot gasoline buying, while others said their contract shipments had increased somewhat. Many believed that the first of next week would see sufficient buying in the spot market to take care of virtually all the so-called distress gasoline now offered.

Another factor which was generally expected to cause some optimism next week is the possibility of sizable export orders being placed. It is no secret now that the buyers for members of the Export Petroleum Association have checked with refiners in the Mid-Continent to ascertain the amount of export gasoline available for June, and it is probable the orders will be allotted early next week. Various reports were heard as to the amount offered. It will be recalled that last month between 9 and 10 million gallons were bought. It is understood that considerably more was offered this time, and that the purchases probably would total 15 million gallons or more.

The first of the past week, however, the gasoline market was decidedly in the doldrums. Refiners in Oklahoma for the most part quoted unchanged prices but experienced little spot business. A few refiners had distress gasoline on their hands and their quotations for resale in a few instances were down to 6.50 cents. Gasoline quoted under that figure from Oklahoma, almost without exception, was not up to specifications.

Considerable competition was encountered by both Oklahoma and Kansas refiners. Some of the competition originated in North and West Texas, while a considerable amount was encountered from Arkansas.

The Illinois and Indiana refiners also gave the Mid-Continent refiners some competition, and refiners who could afford to do so preferred to sit tight and hold their gasolines until such time as the distress gasoline was absorbed.

The Louisiana and Arkansas refiners slowly recovered from the setback experienced in their differential territory because of floods. Prices lost ground, however, because of competition from North Texas and the New Orleans districts. A refiner in Arkansas was one of the factors in the low prices around the Chicago district, having sold to marketers for both prompt and deferred shipments. The gasoline has a good anti-knock value, but reports indicated it does not meet U. S. Motor specifications.

Kerosenes in Kansas were comparatively steady throughout the week, but lost some ground in the other districts. Demand was light a majority of refiners reported in both Oklahoma and North Texas. Prices considerably under 4 cents were reported quoted for export business, but as far as could be learned no export business was placed.

Distillates and gas oil remained virtually out of the market picture in all districts, with the possible exception of north Texas where one or two makers of distillates said their orders had been even better than they had anticipated at this season of the year. Prices generally were unchanged.

Fuel oils failed to shake off any of the sluggishness which has gripped them for many weeks. Demand remained only fair in most districts. Virtually all grades were freely offered. Inquiries for June shipment were only fair while spot buying apparently was on a hand-to-mouth basis.

Neutral oils were steady in prices, manufacturers reported, but the spring demand has slackened slightly. The demand was sufficiently good, however, to leave virtually all the manufacturers in this district in excellent position as far as stocks were concerned.

Bright stocks continued to be extremely quiet with only occasional sales reported. The bulk of shipments continued to be on contract. Several manufacturers in Oklahoma continued to store bright stock and to keep their quotations unchanged but there apparently was increased competition from districts adjacent to Oklahoma, which may tend to push prices down within Group 3 if the refiners hope to retain their share of the bright stock business. Quotations on a Group 3 basis were reported at 33.50 cents up during the past week.

Natural gasolines lost ground in sympathy with refined gasolines, and also because of the approach of the end of the month. There was considerable buying, however, in the course of the week for June shipment.

One company which normally is not a factor in the market informed manufacturers that it would have about 3,500,000 gallons to dispose of in June, but the bulk of the gasoline was bought by some of the larger manufacturers, and the gasoline accordingly will not be pushed on the market as distress stocks. At the same time at least one sizable order was placed for June shipment, and some smaller buying was reported for first half of June delivery.

Grade BB in Texas was the easiest on the grades. Refiners apparently were not buying any sizable quantities in that district at present. The gasoline which normally does not move outside its immediate territory has been forced into the market in competition with other districts with the result prices sagged materially.

One or two large companies were reported to be short on gasoline at the present time, however, and this situation was expected to give the market some firmness late in the month.

Continental to Build Denver Refinery

TULSA, May 29.—Continental Oil Co. has announced that it will begin construction soon on a 2000-barrel refinery just outside Denver. The plant will have skimming and cracking facilities. It will refine crude oil produced by the company in the Fort Collins district north of Denver.

Continental took over June 1, the production properties and gasoline plant of the Carter Oil Co., in the Salt Creek field of Wyoming.

Boston "Tech" To Have Refining Course

NEW YORK, May 26.—Special courses in petroleum refining for the young man seeking specialized training in the technical end of the industry, will be offered at the summer session of Massachusetts Institute of Technology from July 7 to Aug. 9. Dr. T. K. Sherwood will conduct the course on dynamics of fluids and flow of heat. Dr. W. K. Lewis will conduct a course on distillation, rectification and absorption.

Comparative Prices of 58-60 U. S. Motor Gasoline, 437 E. P., Group 3 and Point of Origin, to Jobbers Only

In Effect June 2

	Price F.O.B. Group 3		*Price F.O.B. Point of Origin*		*If for Particular Destination*
Oklahoma	6.8304	(Wt. Avg.)	6.8304	(Wt. Avg.)	.....
Kansas	7.00–7.25	.....	.....	.....	S. O. Neb. & Indiana Territory, etc.
Kansas	.....	.....	7.5114	(Wt. Avg.)	Kansas only.
North Texas	6.75–7.00	.....	6.75–7.00	.....	.....
West Texas	6.75–7.00	.....	7.00	.....	.....
Louisiana-Arkansas	6.75–7.00	.....	.....	.....	Michigan, Ohio and Indiana.
Louisiana-Arkansas	.....	.....	7.125	.....	State or differential haul.
Indiana-Illinois	6.875–7.50	.....	.....*	.....	S. O. Indiana territory except Detroit and vicinity. For Ohio on delivered basis only.

*Shipments made from E. Chicago, Ind., and Wood River, Ill., according to conditions and freight rates; no prices F.O.B. point of origin can be given.

Chicago Resale Market

CHICAGO, May 31

SOME improvement was noted in spot gasoline demand in the Chicago market last week, but prices continued to move lower. Sales of U. S. Motor generally were reported at 6.50 to 6.875 cents, with a few at 6.375 cents Carlot marketers reported buying prices as low as 6.25 cents.

Sales of U. S. Motor for June shipment were reported at 6.625 to 6.875 cents. Some 58-60, 437 e.p. gasoline which would not meet U. S. Motor specifications was offered for prompt shipment at 6.25 to 6.50 cents. Other products were quiet at unchanged prices.

Following prices represent majority of sales made on Group 3 freight basis, although shipments may originate in other refining districts, such as north and west Texas, Arkansas, Louisiana, Indiana, Illinois, Kentucky, etc.

	Prices June 2	Prices May 26	Prices May 19
58-60 U. S. Motor, 437 e.p.	6.50 – 6.875	6.625– 7.00	6.75 – 7.125
60-62 437 e.p. gasoline	6.625– 7.00	6.75 – 7.125	7.00 – 7.25
60-62 400 e.p. gasoline	6.875– 7.25	7.125– 7.375	7.25 – 7.50
64-66 375 e.p. gasoline	7.625– 7.875	7.625– 7.875	7.75 – 8.00
68-70 350-360 e.p. gasoline	7.875– 8.125	7.875– 8.25	8.00 – 8.25
*Domestic Aviation Gasoline	9.50 – 9.75	9.50 – 9.75	9.50 – 9.75
41-43 w.w. kerosene	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
42-44 w.w. kerosene	4.375– 4.50	4.375– 4.50	4.50 – 4.75
38-40 straw distillate	3.00 – 3.125	3.00 – 3.125	3.00 – 3.125
32-36 ordinary dark gas oil	2.25 – 2.50	2.25 – 2.50	2.25 – 2.50
32-36 dark zero gas oil	2.50 – 2.75	2.50 – 2.75	2.50 – 2.75
32-36 straw zero gas oil	2.625– 2.75	2.625– 2.75	2.625– 2.75
28-30 zero fuel oil (per bbl.)	$0.875–$0.925	$0.875–$0.925	$0.90 –$0.95
28-30 fuel oil (per bbl.)	$0.85 –$0.90	$0.85 –$0.90	$0.90 –$0.95
24-26 fuel oil (per bbl.)	$0.725–$0.775	$0.725–$0.775	$0.725–$0.775
18-22 fuel oil, low sulfur (per bbl.)	$0.55 –$0.60	$0.55 –$0.60	$0.55 –$0.60
18-22 fuel oil, high sulfur zero (per bbl.)	$0.55 –$0.60	$0.55 –$0.60	$0.575–$0.6

*Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167° F., and not less than 122° F.; 50% recovery at 221°.; 90% at 311°; 96% at 347°; end point 374° F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

Weighted Average Prices

OKLAHOMA

	June 2		May 26		May 19	
	No. of cars	Price	No. of cars	Price	No. of cars	Price
58-60 U. S. Motor, 437 e.p.	14	6.8304	2	7.1875	11	7.1023
60-62 437 e.p. gasoline	1	7.6250	No sales reported		No sales reported	
60-62 400 e.p. gasoline	1	7.7500	1	7.7500	No sales reported	
64-66 375 e.p. gasoline	..	†8.00–8.25	No sales reported		No sales reported	
*58-60 437 e.p. gasoline	..	6.625–7.00	..	6.625–7.125	..	6.75–7.25

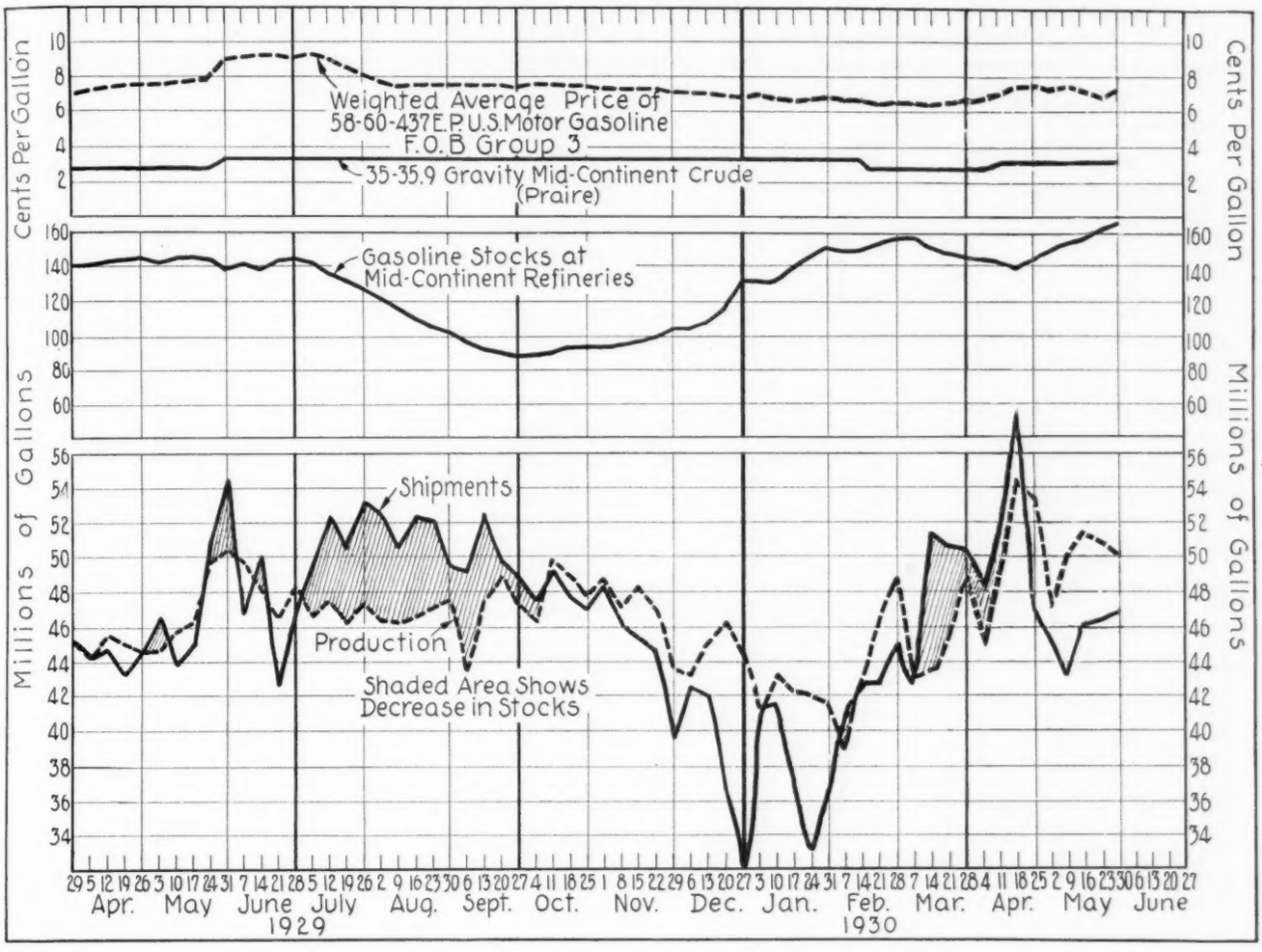
KANSAS

	June 2		May 26		May 19	
	No. of cars	Price	No. of cars	Price	No. of Cars	Price
58-60 U. S. Motor, 437 e.p.	11	7.5114	No sales reported		1	7.7500

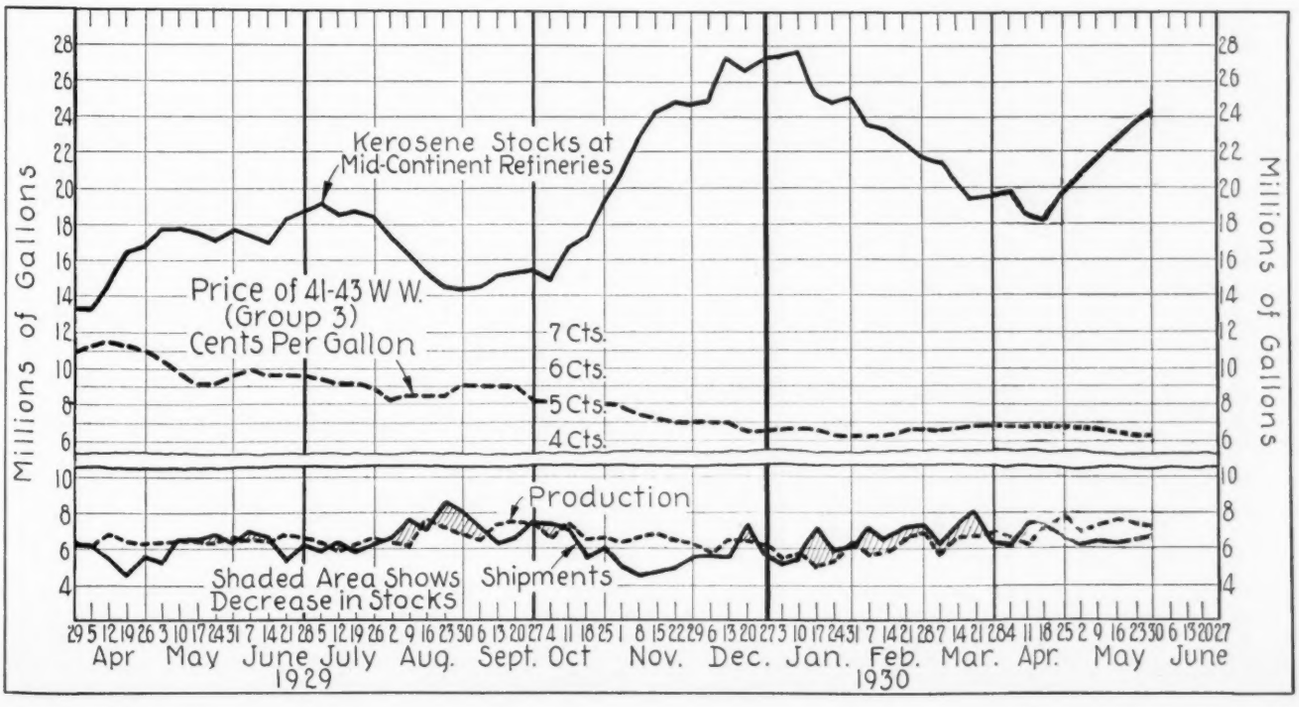
*Full U. S. Motor specifications not guaranteed. †No sales of this gasoline were reported on June 2. These prices represent the majority of quotations for that date.

Barometer of Mid-Continent Refinery Market—Week Ending May 30

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News



Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as shown in the table on page 114



Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, except where $ is shown. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices June 2	Prices May 26	Prices May 19
48-50 450 e.p. naphtha	7.00 – 7.125	7.00 – 7.125	7.00 – 7.25
50-52 450 e.p. naphtha	7.125	7.125	7.125– 7.25
56-58 450 e.p. gasoline	7.00	7.00	7.00 – 7.25
58-60 450 e.p. gasoline	7.00	7.00	7.00 – 7.25
64-66 390 e.p. gasoline	7.50 – 8.00	7.50 – 8.00	7.75 – 8.00
68-70 350-360 e.p. gasoline	8.50 – 8.75	8.50 – 8.75	8.75
‡Domestic Aviation Gasoline	9.00 –10.00	9.00 –10.00	9.00 –10.00

‡Prices based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167° F., and not less than 122° F.; 50% rec. at 221°; 90% at 311°; 96% at 347°; end point, 374°F. Fighting grade in some instances sells at a premium over domestic aviation grade.

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

52-54 Naphtha	7.50 – 7.75	7.50 – 7.75	7.50 – 7.75
54-56 Naphtha	7.75 – 8.00	7.75 – 8.00	7.75 – 8.00
58-60 U.S. Motor 437 e.p.	8.25 – 8.50	8.25 – 8.50	8.375– 8.50
60-62 400-410 e.p. gasoline	8.375– 8.75	8.50 – 9.00	8.50 – 9.00
64-66 390 e.p. gasoline	8.75 – 9.50	8.75 – 9.50	8.75 – 9.50
68-70 350-360 e.p.	9.00 – 9.75	9.00 – 9.75	9.25 – 9.75

OHIO (Quotations of S. O. Ohio. 4c state tax to be added.)

U. S. Motor Gasoline

Ohio, delivery at any point	11.00	11.00	10.50

KANSAS (F. o. b. refinery Kansas destination)

60-62 437 e.p. gasoline	7.75	7.75	7.75
60-62 400 e.p. gasoline	7.75 – 8.00	7.75 – 8.00	7.75 – 8.00
64-66 375 e.p. gasoline	8.25	8.25	8.25

NORTH TEXAS (F. o. b. North Texas refineries)

56-58 450 e.p. gasoline	6.75	6.75	6.75
58-60 450 e.p. gasoline	6.75	6.75	6.75
58-60 U.S. Motor 437 e.p.	6.75 – 7.00	6.75 – 7.00	6.75 – 7.25
60-62 400 e.p. gasoline	7.50	7.50	7.50
64-66 390 e.p. gasoline	7.75	7.75	7.75
64-66 375 e.p. gasoline	8.00	8.00	8.00
68-70 350-360 e.p. gasoline	8.375– 8.50	8.375– 8.50	8.375– 8.50

****WEST TEXAS** (F. o. b. West Texas refinery, for unrestricted shipment)

50-52 naphtha	6.50	6.50	6.50
58-60 437 e.p. gasoline	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75
58-60 U.S. Motor 437 e.p. gasoline	7.00	7.00	7.00 – 7.25

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

58-60 U.S. Motor 437 e. p.	7.125	7.50	7.75

ARKANSAS (Ark., N. La. and Miss. destination)

58-60 U.S. Motor 437 e.p.	7.125	7.50	7.75

CALIFORNIA (3c tax to be added to California gasoline prices if used in state.)

54-58 U.S. Motor 437 e.p.	8.25 – 9.25	8.25 – 9.50	8.25 – 9.50
54-58 U.S. Motor, for outside state shipment	7.00 – 8.00	7.50 – 8.75	7.50 – 8.75
58-61 375-400 e.p. gasoline	9.00 –11.00	9.00 –11.00	9.00 –11.00
42-45 Engine Distillate 445-480 e.p.	8.00 – 9.00	8.00 – 9.00	7.00 – 8.00

NATURAL GASOLINE

(Note: End point of all grades, not over 375 F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA (F. o. b. Oklahoma refineries)

Grade AA, 80-87.9, 90% Recovery	6.125	6.25 – 6.375	6.375
Grade A, 72-79.9, 90% Recovery	6.25	6.375	6.50
Grade BB, 84-92, 85% Recovery	†6.00	6.00	6.125– 6.25
Grade B, 76-83.9, 85% Recovery	6.00	6.25	6.25
Grade C, 80-92, 78% Recovery	†6.00	6.00	6.125– 6.25

NORTH TEXAS (F. o. b. Breckenridge)

Grade AA, 80-87.9, 90% Recovery	6.125	6.25 – 6.375	6.375
Grade A, 72-79.9, 90% Recovery	6.25	6.375	6.50
Grade BB, 84-92, 85% Recovery	†5.625– 5.75	5.875– 6.00	6.125– 6.25
Grade B, 76-83.9, 85% Recovery	6.00	6.25	6.25
Grade C, 80-92, 78% Recovery	†5.625– 5.75	5.875– 6.00	6.125– 6.25

NORTH LOUISIANA (F. o. b. Monroe District)

	Prices June 2	Prices May 26	Prices May 19
Grade AA	†6.25	†6.50	†6.75 – 7.00
Grade BB	†5.875	†6.375	†6.625
Grade C	†5.875	†6.375	†6.625

CALIFORNIA (F. o. b. California refineries)

75-85, 375-390 e.p. blend	7.50 – 8.50	7.50 – 8.50	7.25 – 8.00

BURNING OILS

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

45 w.w. kerosene	5.125– 5.375	5.25 – 5.625	5.375– 5.75
46 w.w. kerosene	5.50 – 5.75	5.50 – 5.875	5.75 – 6.00
47 w.w. kerosene	5.625– 6.25	5.75 – 6.25	6.00 – 6.25
300 mineral seal	6.00 – 6.75	6.50 – 7.00	6.50 – 7.00

OKLAHOMA (F. o. b. Oklahoma refineries)

41-43 w.w. kerosene	4.00 – 4.25	4.00 – 4.25	4.125– 4.25
42-44 w.w. kerosene	4.625– 4.75	4.625– 4.75	4.625– 4.75

KANSAS (F. o. b. refinery Kansas destination)

41-43 w.w. kerosene	4.75	4.75	4.75
42-44 w.w. kerosene	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25

NORTH TEXAS (F. o. b. North Texas refineries)

40-42 w.w. kerosene	3.75 – 4.00	3.75 – 4.00	4.00
41-43 w.w. kerosene	4.00	4.00 – 4.125	4.00 – 4.25

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

41-43 w.w. kerosene	5.00	5.00	5.00
42-44 w.w. kerosene	5.25	5.25	5.25

ARKANSAS (Ark., N. La. and Miss. destination)

42-44 w.w. kerosene	5.25	5.25	5.25

CALIFORNIA (F. o. b. California refineries)

38-40 w.w. kerosene	4.00 – 5.00	4.00 – 5.00	4.00 – 5.00

NEUTRAL OIL

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

Vis.		(Viscosity at 70° F.)	
200 No. 3 Assoc. Filt.	24.00 –26.00	24.00 –26.00	25.00 –26.00
180 No. 3 Assoc. Filt.	20.50 –22.00	20.50 –22.00	20.50 –22.00
150 No. 3 Assoc. Filt.	14.50 –16.00	14.75 –16.00	15.00 –16.00
		(Non Viscous)	
34 Grav. 330-340 Flash	6.25 – 7.00	6.50 – 7.00	6.50 – 7.00

****OKLAHOMA** (F. o. b. Oklahoma refineries)

Vis.	Color	(Viscosity at 100° F.)		
100	No. 2	6.00 – 7.50	6.00 – 7.50	6.00 – 7.50
150	No. 3	8.00 – 9.00	8.00 – 9.00	8.00 – 9.00
150	No. 4	7.00 – 8.50	7.00 – 8.50	7.00 – 8.50
180	No. 3	9.00 –10.50	9.00 –10.50	9.00 –10.50
180	No. 4	9.00 –10.00	9.00 –10.00	9.00 –10.00
180	No. 5	8.50 – 9.50	8.50 – 9.50	8.50 – 9.50
200	No. 3	12.00	12.00	12.00
200	No. 4	10.00 –11.50	10.00 –11.50	10.00 –11.50
200	No. 5	10.50 –11.00	10.50 –11.00	10.50 –11.00
220	No. 3	12.50 –13.50	12.50 –13.50	12.50 –13.50
220	No. 4	12.00 –12.50	12.00 –12.50	12.00 –12.50
220	No. 5	11.00 –12.00	11.00 –12.00	11.00 –12.00
240	No. 3	13.50 –15.50	13.50 –15.50	13.50 –15.50
240	No. 4	12.50 –14.50	12.50 –14.50	12.50 –14.50
240	No. 5	12.00 –14.00	12.00 –14.00	12.00 –14.00
280	No. 3	17.00 –18.00	17.00 –18.00	17.00 –18.00
280	No. 4	15.00 –17.00	15.00 –17.00	15.00 –17.00
280	No. 5	14.00 –15.50	14.00 –15.50	14.00 –15.50

†Prices nominal **††Only one refiner quoting** ***Quotations only**

****Represents Both Sales and Quotations.**

Refinery Markets Wax, Lubricants, Heavy Oil

Prices given below are in cents per gallon, except where $ is shown. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

GULF COASTAL (F. o. b. Gulf Coastal refineries)

Vis.	Color	Prices June 2	Prices May 26	Prices May 19
		(Viscosity at 100° F., pour test 0)		
100	No. 2 Pale	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00
200	No. 3 Pale	9.50 – 9.75	9.50 – 9.75	9.50 – 9.75
300	No. 3 Pale	10.75 –11.00	10.75 –11.00	10.75 –11.00
500	No. 3½ Pale	12.00 –12.25	12.00 –12.25	12.00 –12.25
750	No. 4 Pale	13.50 –13.75	13.50 –13.75	13.50 –13.75
1200	No. 5 Pale	16.00 –16.50	16.00 –16.50	16.00 –16.50
2000	No. 4 Pale	17.00 –17.50	.....	.....
200	No. 5½ Red Oil	8.75 – 9.00	8.75 – 9.00	8.75 – 9.00
300	No. 5½ Red Oil	10.00 –10.25	10.00 –10.25	10.00 –10.25
500	No. 6 Red Oil	11.25 –11.50	11.25 –11.50	11.25 –11.50
750	No. 6 Red Oil	12.75 –13.00	12.75 –13.00	12.75 –13.00
1200	No. 5-6 Red Oil	15.00 –15.25	15.00 –15.25	15.00 –15.25
2000	No. 6 Plus Red Oil	17.00 –17.50	.....	.....

‡CALIFORNIA (F. o. b. California refineries)

Vis.	Color	(Viscosity at 100° F.)		
100	No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200	No. 3	11.50	11.50	11.50
300	No. 3	13.00	13.00	13.00
450	No. 3	15.50	15.50	15.50
550	No. 3	16.50	16.50	16.50
600	No. 3	17.00	17.00	17.00
200	No. 5	11.00	11.00	11.00
300	No. 5	12.00	12.00	12.00
400	No. 5	14.00	14.00	14.00
500	No. 5	15.00	15.00	15.00
600	No. 5	16.00	16.00	16.00
700	No. 7	18.00	18.00	18.00

‡Neutral oils not manufactured commercially in California.

CYLINDER STOCKS

OKLAHOMA (F. o. b. Oklahoma refineries)

190-200 Vis. D at 210° Brt. St.	‡41.00 –42.00	‡41.00 –42.00	‡41.00 –42.00
150-160 Vis. D at 210° Brt. St., 15-20 cold test	‡37.00	‡37.00	‡37.00
150-160 Vis. D Brt. Stock, 25-45 cold test	‡35.00 –36.00	‡35.00 –36.00	‡36.00 –36.50
150-160 Vis. E 210° Brt. St.	‡34.00 –35.00	‡34.00 –35.00	‡34.00 –35.00
600 St. Ref. Olive Green	9.00 –10.00	9.00 –10.00	9.00 –10.00
600 St. Ref. Dark Green	9.00	9.00	9.00
Black Oil	5.00	5.00	5.00

‡Prices represent quotations to domestic jobbers only.

PENNSYLVANIA (F. o. b. Western Penna. refineries) (A.S.T.M. Tests)

600 Steam Refined, filterable	17.00 –19.00	19.00 –20.00	20.00 –21.00
650 Steam Refined	26.50 –28.00	28.00 –29.00	28.00 –29.00
600 Flash	28.00 –30.00	29.00 –31.00	29.50 –32.00
630 Flash	33.00 –35.00	34.50 –35.00	34.50 –35.00
600 Warren E	28.00 –29.50	28.50 –29.50	28.50 –29.50
600 Oil City E	27.00 –28.50	27.50 –28.50	27.50 –28.50
600 D Filtered	34.00 –35.00	34.00 –35.00	34.00 –35.00
Cold Test Stock, 40-50 p. p., 140-150 vis. at 210° 540-550 flash, No. 8 color	35.00 –37.00	36.00 –38.00	38.50 –40.00
40-50 p.p., 140-150 vis. at 210°, 540-550 flash, No. 6-6½ color diluted	†34.00 –35.00	†35.00 –36.00	37.50 –39.00

WAX

PENNSYLVANIA (Per pound, F. o. b. New York)

122-124 white crude scale, a.m.p.	2.375– 2.50	2.40 – 2.50	2.50 – 2.625
124-126 white crude scale, a.m.p.	2.375– 2.50	2.40 – 2.50	2.50 – 2.625

****OKLAHOMA** (Per pound in barrels; in a few instances, per pound in burlap bags; F. o. b. Oklahoma refineries)

124-126 White Crude Scale, a.m.p.	2.375	2.375	2.375

DISTILLATE, GAS AND FUEL OIL

PENNSYLVANIA (For outside Pittsburgh district)

36-40 fuel oil	3.875– 4.25	4.00 – 4.25	4.00 – 4.25
30-34 fuel oil	3.625– 3.75	3.625– 3.75	3.625– 3.75
28-32 fuel oil	3.625– 3.75	3.625– 3.75	3.625– 3.75

†Prices nominal ††Only one refiner quoting *Quotations only

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices June 2	Prices May 26	Prices May 19
38-40 straw distillate	3.00 – 3.25	3.00 – 3.25	3.00 – 3.25
36-38 straw distillate	2.875	2.875	2.875
32-36 straw gas oil	2.50 – 2.75	2.50 – 2.75	2.50 – 2.75
32-36 straw gas oil zero	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00
32-36 dark gas oil	2.25 – 2.50	2.25 – 2.50	2.25 – 2.50
32-36 dark gas oil zero	2.50 – 2.75	2.50 – 2.75	2.50 – 2.75
28-30 zero fuel oil (per bbl.)	$0.90 – 0.95	$0.90 – 0.95	$0.90 – 0.95
28-30 fuel oil (per bbl.)	$0.85 – 0.90	$0.85 – 0.90	$0.85 – 0.90
26-28 fuel oil (per bbl.)	$0.75 – 0.80	$0.80 – 0.85	$0.80 – 0.85
24-26 fuel oil (per bbl.)	$0.70 – 0.75	$0.70 – 0.80	$0.75 – 0.80
22-26 fuel oil (per bbl.)	$0.625– 0.675	$0.625– 0.675	$0.65 – 0.75
18-22 fuel oil (per bbl.)	$0.55 – 0.60	$0.575– 0.60	$0.575– 0.625
16-20 fuel oil (per bbl.)	$0.525– 0.575	$0.55 – 0.60	$0.55 – 0.60
14-16 fuel oil (per bbl.)	$0.50 – 0.575	$0.50 – 0.575	$0.50 – 0.575

KANSAS (F. o. b. refinery Kansas destination)

38-40 straw distillate	3.50	3.50	3.50
36-38 straw distillate	3.00	3.00	3.00
32-36 straw gas oil	3.00	3.00	3.00
18-22 fuel oil (per bbl.)	$0.70 – 0.75	$0.75 – 0.80	$0.75 – 0.80
10-14 fuel oil (per bbl.)	$0.60 – 0.65	$0.70	$0.70 – 0.725

NORTH TEXAS (F. o. b. North Texas refineries)

38-40 straw distillate	3.00	3.00	3.00
38-40 p.w. treated distillate	3.25	3.25	3.25
32-36 gas oil, cracked	2.375– 2.50	2.375– 2.50	2.375– 2.50
32-36 St. reduced gas oil	2.25 – 2.50	2.25 – 2 50	2.25 – 2.50
24-26 fuel oil (per bbl.)	$0.60	$0.60	$0.60
20-24 fuel oil (per bbl.)	$0.50	$0.50	$0.50
18-22 fuel oil (per bbl.)	$0.45	$0.45	$0.45

****WEST TEXAS** (F. o. b. West Texas refinery, or unrestricted shipment)

34-38 gas oil	2.50	2.50	2.50
30-32 gas oil	2.25 – 2.50	2.25 – 2.50	2.25 – 2.50
28-30 zero gas oil	2.50	2.50	2.50
18-22 fuel oil (per bbl.)	$0.60 – 0.65	$0.60 – 0.65	$0.60 – 0.80

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

32-36 gas oil, dark	2.75	2.75	2.75
30-32 gas oil, straw	2.75	2.75	2.75
14-16 fuel oil (per bbl.)	$0.75 – 0.85	$0.75 – 0.85	$0.75 – 0.85

ARKANSAS (Ark., N. La. and Miss. destination)

30-32 gas oil, straw	2.75	2.75	2.75
32-36 dark gas oil	2.75	2.75	2.75
28-30 gas oil	2.50	2.50	2.50
20-24 fuel oil (per bbl.)	$0.95	$0.95	$0.95
9-12 fuel oil (per bbl.)	$0.75	$0.75	$0.75
Black oil	3.25	3.25	3.25

CALIFORNIA (F. o. b. San Joaquin Valley. Nominal pipe line charge to San Francisco 24c per bbl. more and to San Pedro 20c per bbl. more.)

14-18 fuel oil (per bbl.)	$0.50 –$0.65	$0.50 –$0.65	$0.50 –$0.65
14-18 Bunker oil (per bbl.)	$0.70 –$0.80	$0.70 –$0.80	$0.70 –$0.80
30-34 gas oil (per bbl.)	$0.80 –$1.00	$0.80 –$1.00	$0.80 –$1.00
27 Plus Diesel oil (per bbl.)	$0.80 –$0.95	$0.80 –$0.95	$0.80 –$0.95

PETROLATUMS

PENNSYLVANIA (Per pound, in barrels, carload lots, f. o. b. refinery. In tank cars ⅛c to ¼c per pound less.) Two refiners quoting.

Snow White	8.25 – 8.50	8.25 – 8.50	8.25 – 8.50
Lily White	7.25 – 7.50	7.25 – 7.50	7.25 – 7.50
Cream White	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50
Light Amber	3.375– 3.625	3.375– 3.625	3.375– 3.625
Amber	3.125– 3.375	3.125– 3.375	3.125– 3.375
Red	2.875– 3.00	2.875– 3.00	2.875– 3.00

PETROLEUM COKE

****OKLAHOMA** (F. o. b. Oklahoma refineries)

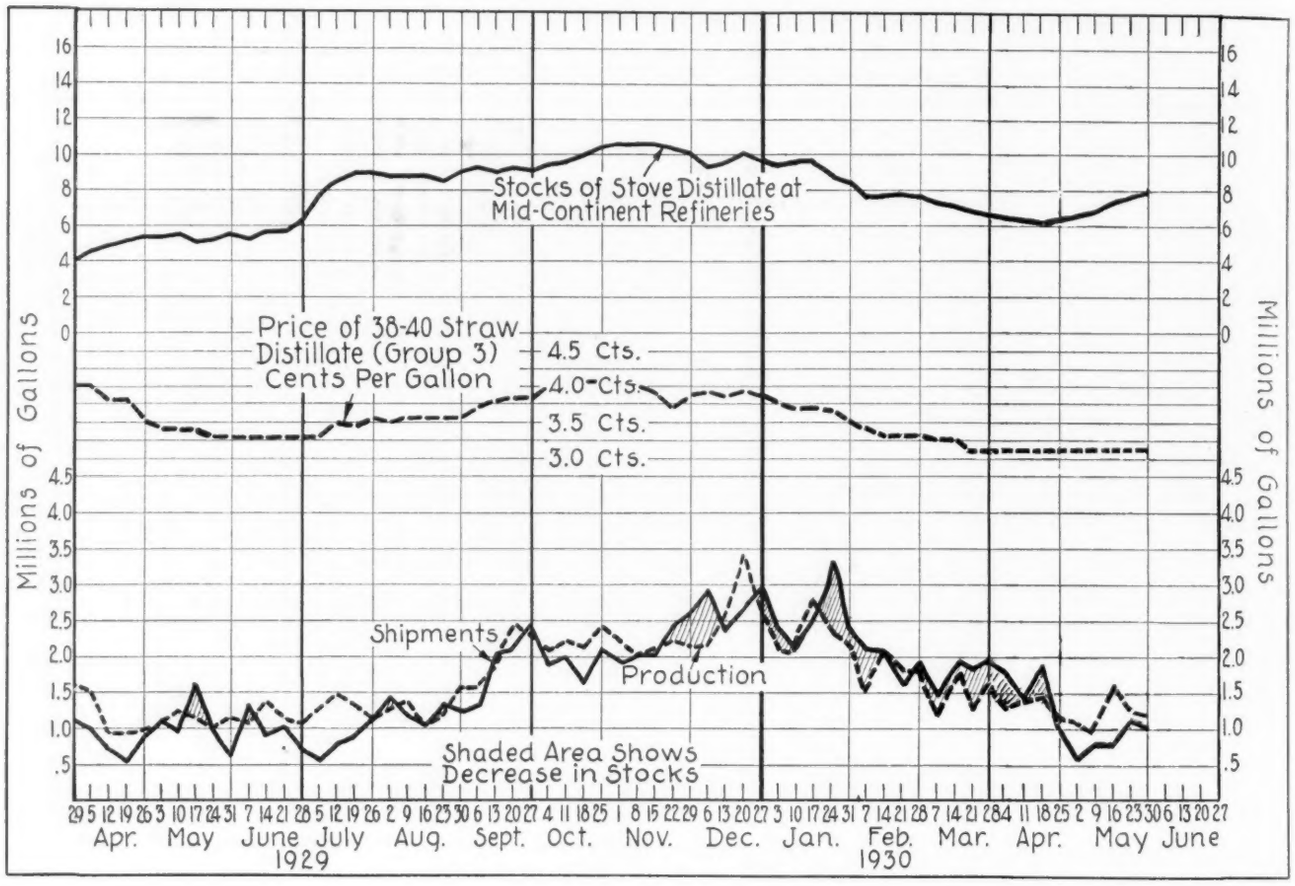
(Per ton in car lots)

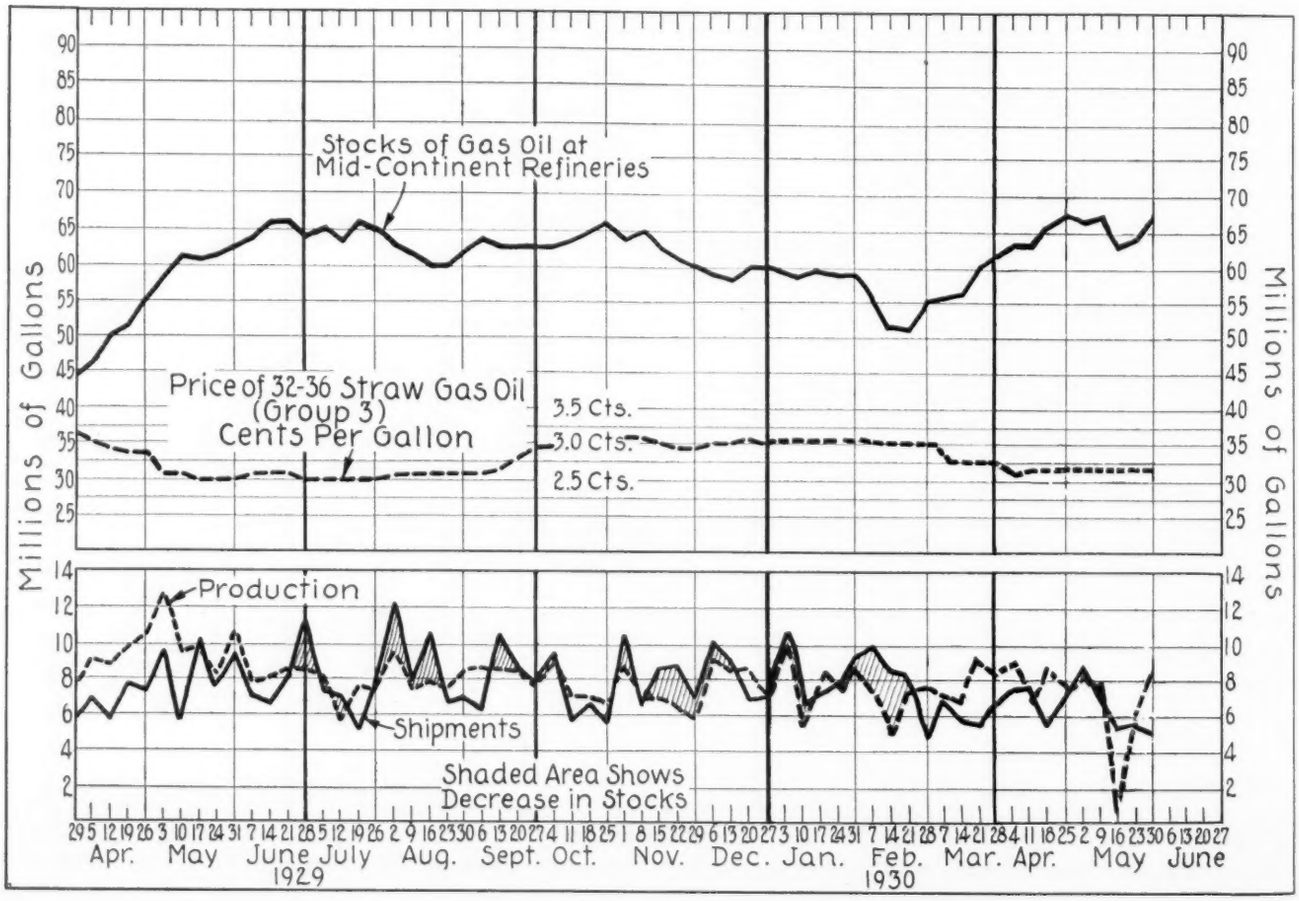
Lump	$4.50 – 5.00	$4.50 – 5.00	$4.50 – 5.00
Still run	$3.00	$3.00	$3.00
Breeze	$2.00	$2.00	$2.00

****Represents Both Sales and Quotations.**

Barometer of Mid-Continent Refinery Market—Week Ending May 30

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News


Stocks of Stove Distillate at Mid-Continent Refineries
Price of 38-40 Straw Distillate (Group 3) Cents Per Gallon
4.5 Cts.
4.0 Cts.
3.5 Cts.
3.0 Cts.
Shipments
Production
Shaded Area Shows Decrease in Stocks
Millions of Gallons
Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June
1929
1930


Stocks of Gas Oil at Mid-Continent Refineries
Price of 32-36 Straw Gas Oil (Group 3) Cents Per Gallon
3.5 Cts.
3.0 Cts.
2.5 Cts.
Production
Shipments
Shaded Area Shows Decrease in Stocks
Millions of Gallons
Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June
1929
1930

IT'S WISE TO CHOOSE A SIX

. . . and the Chevrolet six-cylinder truck costs no more for gas, oil or upkeep

In the low-price commercial car field, the swing to six-cylinder trucks is growing steadily more impressive every day.

For leading firms in every line of business are rapidly learning the facts about Chevrolet performance — that it offers all the advantages of six-cylinder power, six-cylinder speed, six-cylinder flexibility *without costing a dollar more for operation or upkeep!*

No other truck of similar capacity gives any better gas and oil mileage. For Chevrolet offers such modern features of efficiency as overhead valves, crankcase ventilation, a hot-spot manifold, and the latest type carburetion.

No other costs less for upkeep. For Chevrolet's big rugged spiral-bevel-gear rear axle — its sturdy full-length frame — and the six-cylinder engine itself, with its marked absence of destructive vibration — all make for greater dependability, and lower maintenance costs.

No other costs less for service! For Chevrolet flat-rate service charges on many operations are the lowest in the entire motor car industry.

If you are interested in getting top efficiency from your trucking equipment — and cutting mileage costs as well — see your nearest Chevrolet dealer. Investigate Chevrolet's 50-horsepower six-cylinder engine — its four long semi-elliptic springs — its time-proved 4-speed transmission — its generous carrying capacity. Consider how much better this modern *truck* can do your work — how much *faster, easier, more economically!* And be sure to learn about the small down payment and easy G. M. A. C. terms available to every buyer of a Chevrolet truck.

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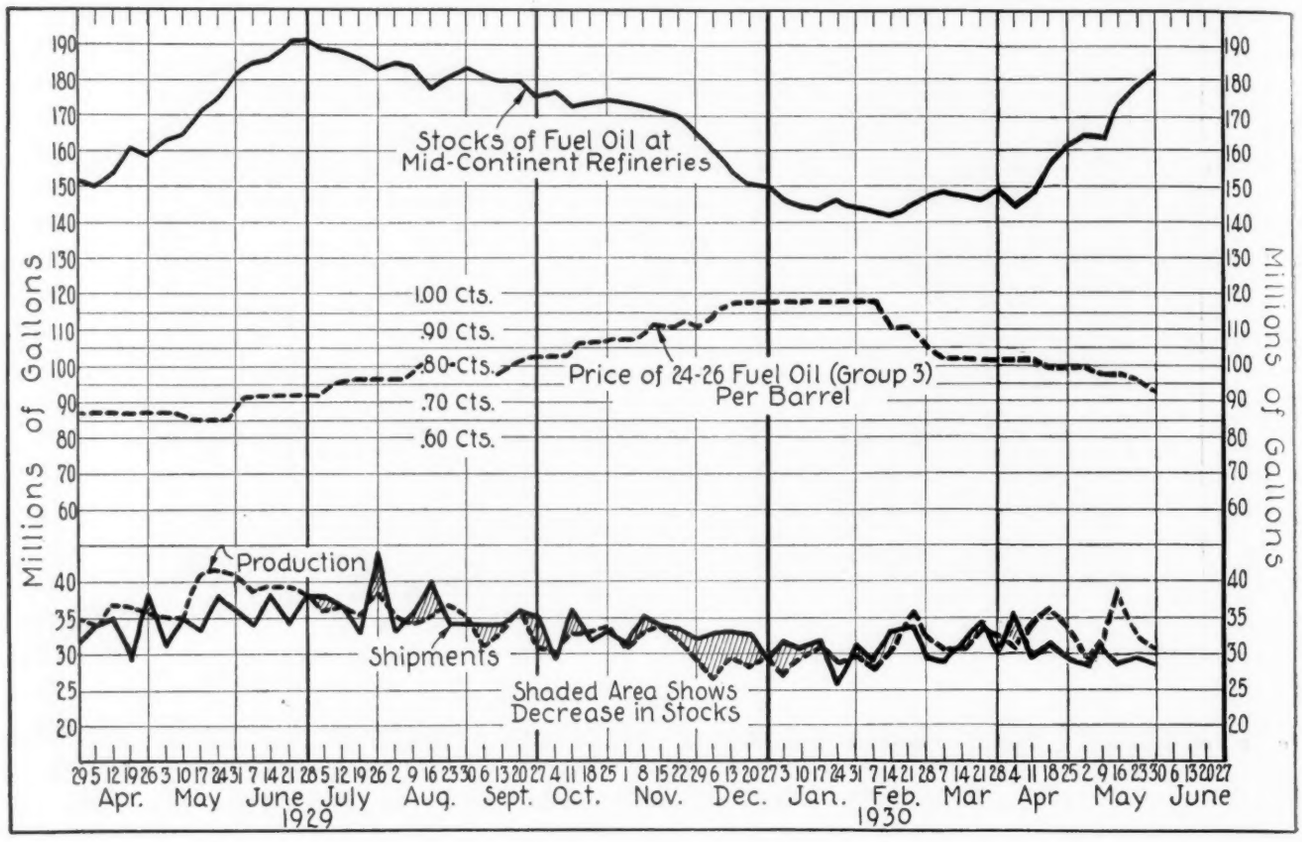
All prices f. o. b. factory, Flint, Michigan

CHEVROLET SIX-CYLINDER TRUCKS

Barometer of Mid-Continent Refinery Market—Week Ending May 30

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News



California Refinery Market

High Tanker Rates Hamper Cargo Trading

LOS ANGELES, May 31

PACIFIC coast exporters continued to report numerous inquiries from Atlantic domestic and Atlantic foreign buyers the past week. Few of these inquiries resulted in spot sales largely because of current high tanker rates. Actuated by reports of early restoration of Santa Fe Springs crude prices, the west coast markets assumed a more optimistic tone with slightly higher prices quoted by several members of the trade.

Charter rates on clean boats were in the neighborhood of $1.15 per barrel with few tankers available. Dirty bottoms, although in less demand, brought as high as $1.05 per barrel. Few of the trade could see any future spot business with east coast buyers while these rates continue.

Standard Oil Co. of California was reported to have purchased two cargoes of U. S. Motor from an independent California company at its posted price of 6.50 cents f.o.b. the vessel, San Pedro harbor. This is the first sale reported since the inauguration of Standard's new purchasing plan. Members of the trade claimed the sale was possible only because the independent company, with harbor facilities, was pressed for storage space for gasoline accumulated during the periods of cheap crude. It was not considered likely that, except under similar distress conditions, export motor fuel could be purchased under 6.75 or 7 cents.

Several independent refiners reported an Atlantic seaboard buyer was inquiring for a cargo of gasoil for immediate lifting. Few expected the deal to be closed under existing high charter rates.

Reports from Japan indicated a California refiner had sold a cargo of 27 plus diesel oil for $0.82 per barrel although the rumor could not be confirmed in local export circles.

In addition to these inquiries an English buyer was reported in the market for 400 e.p. gasoline, but additional details could not be learned. Local west coast refiners refused to show much interest in repeated exploratory bids from foreign buyers who heretofore have failed to place actual orders.

Prices on all commodities were unchanged in the export division of Pacific Coast markets although quotations on fuel oils in cargo lots evidenced a firmer tone. Higher prices recently received for the bulk of Pacific Coast U. S. Navy fuel oil needs, indicated that little bunker C fuel oil would be available in the future at under $0.70 per barrel.

California domestic markets passed a featureless week with quotations unchanged on all commodities. Most spot sales of U. S. motor for use within the state were made at 8.25 to 9 cents. Out of state gasoline business displayed a tendency late in the week

to move at 7 to 8 cents, as much as 0.50-cent under previous quotations.

It was rumored major marketing officials contemplated a reduction in local gasoline tank wagon prices during the early part of the week. This action was averted, however, through an increase in tank wagon delivery price from 11.50 to 14.50 cents by a large independent refiner. Prevailing retail prices in Los Angeles were 2 to 3 cents under the price of 19.50 cents maintained by chain companies handling major products.

Pennsylvania Market

Cylinder Stocks More Active

CLEVELAND, May 31.—Lower prices for cylinder stocks and bright stocks quickened the pace of western Pennsylvania markets the last week of May. Buyers of these commodities were more active in the market than they had been for several weeks. The activity spread to motor fuels and burning oils although in this division of the market it was on a smaller scale.

Filterable 600 steam refined led the cylinder stocks market down. Prices for this oil dropped 1 to 2 cents a gallon early in the week. Offered at 18 cents a gallon, buyers appeared more interested than they had been for some time. According to reports, orders for a larger volume of this oil were placed in the week ended May 31 than during the three previous weeks together.

The greater activity, however, failed to keep prices from slipping further. Filterable 600 was offered freely at 17 cents a gallon at the end of the week. Indications were that even this price might be shaded materially on firm offer.

Prices for all other grades of cylinder stock declined proportionately with the 600 grade, filtered stocks included.

Spot buying of gasoline remained pretty much on a hand-to-mouth basis. Orders for shipment over June were more numerous. Prices for gasoline over that period in most instances were the top of the spot market. Spot U. S. Motor was quoted by the majority of sellers at 8.25 to 8.50 cents. Most of the deferred shipment sales reported were at the latter figure. One refiner reported the sale of 30 cars at 8.50.

Kerosenes were offered freely at prices generally 0.125 cent lower than those prevailing the previous week. The 45 w.w. grade was plentiful at 5.125 cents for spot shipment. Orders for deferred shipment were placed at lower prices.

Fuel oils were relatively quiet with prices off 0.125 cent a gallon. Neutral oils and wax held fairly steady.

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1213 W. 3rd Street Cleveland, Ohio

Eastern Domestic Markets

Gasoline Drops 0.25 Cent at New York

Staff Special
NEW YORK, May 31,

COOL weather and continuation of hand-to-mouth buying on the part of jobbers caused a reduction of 0.25 cent in gasoline prices at New York last week. Prices were unchanged in other districts. The only bright spot was a tank wagon advance in Pennsylvania and Delaware.

U. S. Motor in the New York harbor district was quoted at 8.75 to 9 cents May 29, and California gasoline at 9 to 9.50 cents, a reduction of 0.25 cent on the lows of the price ranges. These prices were quoted for June delivery. A few jobbers were interested in buying for that period.

One refiner quoted 8.75 cents to feel out the market, as he put it. He did not get any business. Another quoted the same figure and was told by the jobber that his price was high. California gasoline was offered in one instance at 8.90 cents f.o.b. the harbor, but as far as could be learned no sales had been made. A broker was reported to have offered California gasoline at 8.75 cents.

New England markets remained at last weeks' price levels and refiners said there was very little spot business to be had. At more southern points the markets were in better shape. In the Norfolk district particularly, the trade said both spot and contract shipments were good. A Baltimore distributor of California gasoline reported selling 150 cars over June at 9 cents, the low of the current market.

Refiners expected the gasoline business to pick up the past week in view of the holiday. Without exception however, in the New York and New England districts, they said their sales were only slightly heavier. They were not heavy enough to establish, as they had expected, a firm 9-cent market in the majority of districts However, they felt that the situation at New York was only temporary and that in a few days the market would return to its former level.

The Atlantic Refining Co. announced a tank wagon advance of 1 cent through Pennsylvania and Delaware May 27, to become effective May 29. Spot tank car prices were unchanged at Philadelphia and Baltimore although some traders felt that the tank wagon increase would result in higher spot prices in these two districts. Most refiners said that spot prices already had discounted the tank wagon raise.

While cooler weather had a bad effect on the gasoline market, it stimulated sales of heating oils and kerosene. Gas oil sales held up well and the market continued relatively firm at 4.75 to 5.25 cents. An unconfirmed report was heard that a supplier had quoted 4.50 cents to an account in the New York district over the 1930-31 season.

Kerosene was the soft spot in the market. Prices were unchanged last week but the trade indicated all that held them up was the stimulant of cooler weather. The few refiners who quoted 7.75 cents indicated they would reduce their prices in the near future. Several brokers believed that 7 cents could be done but no sales had been reported up to the end of the week.

Three New Vice Presidents

NEW YORK, May 31.—Three new vice presidents of the Standard Oil Co., (New Jersey) were elected at a meeting of the Board of Directors May 16. They are C. G. Black, a director of the Standard Oil Co., (N. J.) and president of the Standard Oil Co., of New Jersey; E. M. Clark, a director of the Standard Oil Co., (N. J.) and president of the Standard Shipping Co., and the Standard Oil Development Co., and E. J. Sadler, a director of the Standard Oil Co. (N. J.) and president of the Creole Petroleum Corp.

Longshore Joins S. O. New York

NEW YORK, May 31.—C. H. Longshore resigned his position of vice president and treasurer of the Richfield Oil Corp., of New York, effective May 30. His successor has not been announced.

Mr. Longshore has joined the marketing staff of the Standard Oil Co., of New York. He was associated for years with A. C. Woodman, former president of the Acewood Petroleum Co.

Gulf Coast Markets

Foreign and Domestic Trading Quiet

Staff Special.
NEW YORK, May 31

NOTHING occurred in the market the past week to quicken the interest of the Gulf refiner or operator. Foreign buyers were inactive and prices for all commodities, both for export and domestic shipment, were unchanged. There was some indication that domestic kerosene prices and gas oil prices both for domestic and export movement might be reduced.

It was apparent this week that the purchases made in the American market by two French buyers recently did not proceed a general wave of buying. There were no inquiries in the market this week and the opinion was general that no further activity will be observed in the export market for some time. However, some of the trade were of the opinion that foreign accounts were not particularly long of gasoline. They were watching the American market, it was believed, to take advantage of any low-priced material which might crop up.

Since the decline in prices in the Mid-Continent several suppliers believed that kerosene could be purchased for movement to the domestic trade at lower prices. None of the Gulf refiners had revised prices up to the end of the week but there were some traders who expected to see a decline of 0.125 to 0.25 cent before the end of the coming week. There was no business transacted in the domestic market last week, however.

Gas oil prices in both divisions of the Gulf market also showed signs of slipping at the end of the week. One large refiner was making no distinction in price between 26-30 and 30 plus oil and it was indicated 3.875 cents for export shipment might be shaded from this source. This applied to domestic shipments also and some traders indicated these prices might ease off fractionally.

Bunker C fuel oil prices were unchanged despite the belief a week ago that oil at $0.75 per barrel would not be available for long. Most refiners reported that production of this oil was about in balance with demand. Two refiners were reported out of the market.

NEW YORK—The Superheater Co. moved its offices June 2 to the Lincoln Bldg. 60 East 42nd St., here.

Wax Markets

White Crude Scale Lower

NEW YORK, May 31.—Trading in waxes was light during the week ended May 31 only a few sales of white crude scale were reported and United Kingdom buyers continued to bid low prices for forward shipment. Prices were lower for the majority of grades both at New York and New Orleans.

White crude scale in both markets was off 0.05 cent on the lows of quotation ranges to 2.35. Quotations ranged upward to 2.50 cents. Low quotations for yellow crude scale were 2.35 cents also, and the highs, 2.375 cents. No sales of yellow crude scale were reported.

A few sales of white crude scale were made at 2.35 cents. One sale was reported lower but the report could not be confirmed. An English buyer was reported to have purchased 100 tons for July and August shipment at 2.32 cents per pound f.a.s. New York. A New York broker said he had been quoted 2.25 cents by a Pennsylvania refiner. This wax was available for June and July shipment.

Gulf markets were on the same level as those at New York. Some traders believed low white crude scale prices could be shaded but no sales were reported under current quotations. However, semi-refined wax from the Mid-Continent could be purchased for June delivery at 2.35 cents f.a.s. the Gulf.

American fully refined markets reacted downward to the price reduction made by foreign refiners and distributors last week. Outstanding in reductions in these markets was that of the 125-127 A.m.p. grade at New York. Sellers indicated two weeks ago that business was not acceptable under 3.75 cents. They quoted 3.625 cents at the end of the past week, however, and one refiner indicated he would shade that price if the quantity was sufficient. There were reports that a small lot had moved at 3.50 cents from New York.

The trade continued to view wax markets from a pessimistic angle. Candles were selling in the United Kingdom markets at 4 cents per pound. With this low price for the finished product, manufacturers had to purchase their requirements from Poland or buy in the American market at low prices. Polish fully refined waxes were offered at the same prices quoted for American crude scale, according to reports.

Germany's exports of lubricating oils to Finland in 1928 totaled 34,447 barrels, compared with the United States, which held second place with exports of 23,000 barrels.

Skilled Supervision
Guarantees the Quality of
Gulf Products

COASTAL AND PARAFFINE CRUDES
GASOLINE — LUBRICATING OILS
NAPHTHA — GAS — OILS
WAX — PETROLEUM COKE
CYLINDER — ENGINE — CORDAGE

Gulf Refining Company

General Sales Offices
PITTSBURGH, PA.

District Sales Offices
New York, Boston, Philadelphia, Louisville, Atlanta, Houston, New Orleans

Complete Seaboard Market

(Export Markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the whole year)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of sales and quotations. Prices shown below do not include inspection tax levied in some states.)

	Prices June 2	Prices May 26	Prices May 19
U. S. MOTOR GASOLINE			
New York harbor	8.75 – 9.00	9.00	8.75 – 9.00
Portland district	*10.30	*10.30	*10.30
Boston district	*10.00	*10.00	*10.00
Providence district	*10.20	*10.20	*10.20
Philadelphia district	9.00	9.00	9.00
Baltimore district	9.00	9.00	9.00
Norfolk district	9.00	9.00	9.00
Charleston district	9.00	9.00	9.00
Savannah district	9.00	9.00	9.00
Jacksonville district	9.00 – 9.25	9.00 – 9.25	9.00 – 9.25
CALIFORNIA, U. S. MOTOR GASOLINE			
New York harbor	9.00 – 9.50	9.25 – 9.50	9.00 – 9.50
Philadelphia district	9.00	9.00	9.00
Baltimore district	9.00 – 9.25	9.00 – 9.25	9.00
‡DOMESTIC AVIATION GASOLINE			
New York harbor	12.00 –13.00	12.00 –13.00	12.00 –12.75
Philadelphia	12.00	12.00	11.75 –12.00
Baltimore	12.00 –12.50	12.00 –12.50	12.00 –12.50
Boston	11.50 –13.00	11.50 –13.00	11.50 –13.00
WATER WHITE KEROSENE			
New York harbor	7.25 – 7.75	7.25 – 7.75	7.25 – 7.75
Philadelphia district	7.25 – 7.75	7.25 – 7.75	7.25 – 7.75
Baltimore district	7.25 – 7.75	7.25 – 7.75	7.25 – 7.75
GAS OIL: 28-34 Gravity			
New York harbor	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25
Boston district	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25
FURNACE OIL: 36-40 Gravity			
New York harbor	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
Boston district	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
GRADE C BUNKER OIL (Lighterage 5c per bbl. additional)			
New York Harbor	$1.15	$1.15	$1.15
Boston district	$1.15	$1.15	$1.15
DIESEL OIL			
New York harbor	$2.00 –$2.10	$2.00 –$2.10	$2.00 –$2.10

‡Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167° F., and not less than 122°F.; 50% recovery at 221°; 90% at 311°; 96% at 347°; end point 374° F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

*Minimum delivered. †Nominal. **Delivered prices.

New York Export Market

(Lubricating oils are per gal. in bbls. F.a.s. New York)

	June 2	May 26	May 19
CYLINDER OILS (Pennsylvania Products)			
Bright stock, dark	40.50 –42.00	41.50 –43.50	42.50 –45.00
600 D filtered	37.00 –38.50	38.50	38.50 –40.00
600 Warren E filtered	31.50 –32.25	32.25 –33.50	33.50 –35.00
600 s.r. unfiltered	25.50 –27.00	26.25 –27.50	27.50 –28.50
650 s.r. unfiltered	29.00 –31.50	32.75 –35.00	35.00 –37.00
600 flash, s.r.	31.50 –33.00	35.00 –36.50	36.50 –38.00
630 flash, s.r.	40.50 –43.00	40.50 –43.00	42.50 –44.00
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	19.00 –21.00	20.00 –21.00	20.00 –21.00
250 vis. No. 6 color	17.50 –18.50	17.50 –18.50	17.50 –18.50
200 vis. No. 6 color	16.00 –17.00	16.50 –17.50	16.50 –17.50
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¾ color	22.00	23.00 –24.00	23.00 –24.00
180 vis. No. 3¼ color	17.50 –18.00	19.00	19.00
100 vis. No. 2¼ color	14.25 –15.50	15.50 –16.00	15.50 –16.00
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	30.00 –32.00	30.00	30.00
500 vis. No. 6½ color	27.50 –30.00	26.50 –27.50	26.50 –27.50
400 vis. No. 7¼ color	26.00 –29.00	23.00 –25.00	23.00 –25.00
300 vis. No. 6 color	22.00 –26.00	20.00 –22.00	20.00 –22.00
200 vis. No. 6 color	21.00 –23.50	18.00 –20.00	18.00 –20.00

Wax Markets

(Prices in cents per pound, A.S.T.M. tests; A.M.P. F.a.s. carload lots)

NEW YORK	June 2	May 26	May 19
124-126 Yellow crude scale	2.35 – 2.375	2.375	2.375
122-124 White crude scale	2.35 – 2.50	2.40 – 2.50	2.45 – 2.625
124-126 White crude scale	2.35 – 2.50	2.40 – 2.50	2.45 – 2.625
123-125 Fully refined	3.50	3.50 – 3.625	3.50 – 3.625
125-127 Fully refined	3.625	3.75	3.75
128-130 Fully refined	3.875	3.875– 4.00	3.875– 4.00
130-132 Fully refined	4.125– 4.25	4.25 – 4.50	4.25 – 4.50
133-135 Fully refined	5.00	5.00	5.00
135-137 Fully refined	5.125– 5.25	5.50	5.50
NEW ORLEANS			
124-126 Yellow crude scale	2.35 – 2.375	2.375	2.375
122-124 White crude scale	2.35 – 2.50	2.40 – 2.50	2.45 – 2.625
124-126 White crude scale	2.35 – 2.50	2.40 – 2.50	2.45 – 2.625
123-125 Fully refined	3.375– 3.50	3.50	3.50
125-127 Fully refined	3.50	3.50 – 3.75	3.50 – 3.75
128-130 Fully refined	3.75	3.75 – 4.00	3.75 – 4.00
130-132 Fully refined	4.125	4.25 – 4.375	4.25 – 4.375
133-135 Fully refined	4.75	4.75 – 5.00	4.75 – 5.00

Gulf Export Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. or more unless otherwise noted. Bulk gasoline and kerosene prices are posted quotations of the Export Petroleum Assoc., Inc., governing about 90% of the gasoline and kerosene shipped to foreign ports from the Gulf)

	Prices June 2	Prices May 26	Prices May 19
GASOLINE			
U. S. Motor	8.00	8.00	8.00
60-62, 400 e.p.	9.00	9.00	9 00
61-63, 390 e.p.	9.25	9.25	9.25
64-66, 375 e.p.	9.50	9.50	9.50
U. S. Motor, cases (cargoes)	$1.85	$1.85	$1.85
64-66, cases (cargoes)	$2.00	$2.00	$2.00
KEROSENE			
44 water white	7.00	7.00	7.00
41-43 prime white	6.00	6.00	6.00
Water white, cases (cargoes)	$1.75	$1.75	$1.75
Prime white, cases (cargoes)	$1.65	$1.65	$1.65
DOMESTIC GAS & BUNKER OILS			
*26-30 translucent gas oil	3.50 – 3.75	3.50 – 3.75	3.50 – 3.75
*30 plus translucent gas oil	3.75 – 4.00	3.875– 4.00	3.875– 4.00
Grade C bunker oil	$1.05	$1.05	$1.05
Grade C bunker oil, cargoes	$0.75 –$0.85	$0.75 –$0.80	$0.75 –$0.80
MEXICAN CRUDE AND BUNKER OILS (f. o. b. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid	$0.68 –$0.70	$0.68 –$0.70	$0.68 –$0.70
Grade C bunker oil for bunkering purposes, taxes paid	$1.00	$1.00	$1.00
SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F. cold test 0 Tanker, f. o. b. Houston)			
100 vis. No. 2 unfiltered pale	5.75 – 6.125	5.75 – 6.125	5.75 – 6.125
200 vis. No. 3 unfiltered pale	8.00 – 8.75	8.00 – 8.75	8.00 – 8.75
300 vis. No. 3 unfiltered pale	8.875– 9.50	8.875– 9.50	8.875– 9.50
500 vis. No. 3½ unfiltered pale	10.25 –11.25	10.25 –11.25	10.25 –11.25
750 vis. No. 4 unfiltered pale	12.50 –13.25	12.50 –13.25	12.50 –13.25
1200 vis. No. 5 unfiltered pale	16.00 –18.00	16.00 –18.00	16.00 –18.00
200 vis. No. 5-6 red oil	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
300 vis. No. 5-6 red oil	8.375– 8.75	8.375– 8.75	8.375– 8.75
500 vis. No. 5-6 red oil	9.25 – 9.50	9.25 – 9.50	9.25 – 9.50
750 vis. No. 5-6 red oil	11.50	11.50	11.50
1200 vis. No. 5-6 red oil	15.00 –15.50	15.00 –15.50	15.00 –15.50

*Less than ½ of 1% sulphur.

Gulf Domestic Market

(Prices are f.o.b. Gulf oil terminals in Texas and Louisiana in shipments of 20,000 bbls. or more, representing sellers' opinions, for domestic shipment only.)

	June 2	May 26	May 19
U. S. Motor gasoline	7.50	7.50	7.50
41-43 w.w. kerosene	5.875– 6.00	5.875– 6.25	5.875– 6.25
*26-32 translucent gas oil	3.75 – 4.00	3.75 – 4.00	3.75 – 4.00

*Less than ½ of 1% sulphur.

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	June 2	May 26	May 19
Gasoline, U. S. Motor, 53-55 Gravity	6.50 – 7.50	6.50 – 7.50	6.50 – 7.50
Gasoline, U. S. Motor-blends and special cuts	7.25 – 8.25	7.25 – 8.25	7.25 – 8.25
Gasoline, 400 e.p. blends	8.50 – 9.50	8.50 – 9.50	8.50 – 9.50
Gas Oil, 30-34, per bbl.	$0.80 –$1.00	$0.80 –$1.00	$0.80 –$1.00
Diesel Oil, 27 plus, per bbl.	$0.75 –$0.90	$0.75 –$0.90	$0.75 –$0.90
Bunker oil, 14-18, per bbl.	$0.60 –$0.85	$0.60 –$0.85	$0.60 –$0.85
Fuel oil, 14-18 per bbl.	$0.55 –$0.85	$0.55 –$0.85	$0.55 –$0.85
Kerosene, 38-40 w.w., 125-150 flash, per gal.	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25
Cased Goods			
Gasoline, U. S. Motor	$1.75 –$1.85	$1.75 –$1.85	$1.75 –$1.85
Gasoline, 400 e.p.	$1.85 –$2.00	$1.85 –$2.00	$1.85 –$2.00
Kerosene, 38-40 w.w., 125-150 flash	$1.45 –$1.50	$1.45 –$1.50	$1.45 –$1.50

Note: Above Pacific Export market prices for gasoline and kerosene in cargo lots apply only on goods for coastwise shipment. Gasoline and kerosene prices for shipment to foreign ports are determined as follows: Difference in freight between U. S. Gulf to European Continent and California to European Continent —this difference plus 0.125c for handling, deducted from prices posted at U. S. Gulf by the Export Petroleum Assoc., Inc., which are above prices.

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling; to American ports, cents per barrel.)

	June 2 Crude &/or Fuel	Refined Oil &/or Spirits
Calif. to U. K. or Continental ports*	38-40	38
Gulf to U. K. or Continental ports*	26-28	27
North Atlantic to U. K. or Continental ports*	23/6-25	24/6
Calif. to North Atlantic ports (not E. of N. Y.)	$0.80-$0.90	$1.00-$1.05
Gulf to North Atlantic ports (not E. of N. Y.)**	32-35	40-43

*Continental ports in the range between Bordeaux and Hamburg, both inclusive. **Venezuela loading same rate. For Tampico 3c to 4c per bbl. additional.

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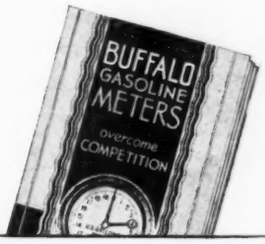

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City _____ State _____

Tank Wagon, Service Station Markets for Gasoline and Kerosene

(OIL PRICE HANDBOOK has t.w. and s.s. markets for a whole year, arranged for quick reference)

These Prices in Effect June 2, 1930, as Posted by Principal Marketing Companies

S.O. NEW JERSEY TERRITORY

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Atlantic City, N. J.	14.5	2	16.5	18.5	13.5
Newark, N. J.	13.5	2	15 5	17.5	12.5
Annapolis	14	4	18	20	13
Baltimore, Md.	13.2	4	17.2	19.2	10.5
Cumberland, Md.	15	4	19	21	14
Washington, D. C.	13 7	2	15.7	17 7	12.7
Danville, Va.	14 8	5	19.8	21.8	13.8
Norfolk, Va.	13.3	5	18 3	20.3	12
Richmond, Va.	13 7	5	18 7	20.7	12.7
Roanoke, Va.	15	5	20	21	14
Petersburg, Va.	14.3	5	19.3	21.3	13.3
Charleston, W. Va.	14.5	4	18.5	20.5	12.5
Keyser, W. Va.	15.1	4	19.1	21.1	14.1
Parkersburg, W. Va.	13.2	4	17.2	19.2	11.2
Wheeling, W. Va.	14.4	4	18.4	20.4	12.4
Charlotte, N. C.	15.3	5	20.3	22.3	14.3
Hickory, N. C.	15.8	5	20.8	22.8	14.8
Mt. Airy, N. C.	15.5	5	20.5	22.5	14.5
Salisbury, N. C.	15.7	5	20.7	22.7	14.7
Charleston, S. C.	13.3	6	19.3	21.3	12.3
Columbia, S. C.	15.2	6	21.2	23.2	14.2

Note: 2c per gallon discount off t.w. price of gasoline to dealers and commercial consumers thru S. O. New Jersey territory.

CONTINENTAL OIL

Denver, Colo.	13	4	17	20	15.5
Pueblo, Colo.	14	4	18	21	15.5
Grand Junc., Colo.	19	4	23	26	19
Casper, Wyo.	15	4	19	22	14
Cheyenne, Wyo.	16.5	4	20.5	23.5	15.5
Butte, Mont.	19.5	5	24.5	27.5	20
Helena, Mont.	19.5	5	24.5	27.5	20
Salt Lake City, Utah	16.5	3½	20	23	17
Boise, Ida.	18.5	5	23.5	26.5	19
Twin Falls, Ida.	18.5	5	23.5	27.5	19
Albuquerque, N. M.	16	5	21	24	17

S. O. CALIFORNIA

				*Plant	
Phoenix, Ariz.	13	4	17	21	20
Los Angeles, Cal.	18.5	3	21.5	24.5	15.5
Fresno, Cal.	19	3	22	25	17
San Francisco, Cal.	19	3	22	25	15.5
Reno, Nev.	23	4	27	30	19
Portland, Ore.	19.5	4	23.5	26.5	16.5
Seattle, Wash.	19.5	3	22.5	25.5	16.5
Spokane, Wash.	23.5	3	26.5	29.5	20.5
Tacoma, Wash.	19.5	3	22.5	25.5	16.5

Note: 6c per gal. discount to dealers off t.w. price of gasoline to customers taking tank truck delivery, thru S. O. California territory except 1c discount at Phoenix to dealers only.

*Prices in the fourth column represent retail sale prices of gasoline for delivery into fuel tanks of customers' automotive equipment at S. O. California refineries, terminals and district depots as this company operates no retail service stations.

S. O. LOUISIANA

Little Rock, Ark.	13	5	18	19	13
Alexandria, La.	13	4	17	17	†14
Baton Rouge, La.	12	4	16	17	†14
Lake Charles, La.	11	*5	16	16	†14
New Orleans, La.	11	*5	16	16	†12
Shreveport, La.	12	4	16	18	†14
Lafayette, La.	13	*5	18	20	†14
Bristol, Tenn.	15	5	20	22	14
Chattanooga, Tenn.	15	5	20	22	13
Knoxville, Tenn.	15	5	20	22	16
Nashville, Tenn.	14	5	19	21	16
Memphis, Tenn.	13	5	18	20	12.5

Note: 2c per gallon discount off t.w. price of gasoline to dealers thru S. O. Louisiana territory.

*Lake Charles, New Orleans and Lafayette gasoline tax includes 4c state tax and 1c parish tax. New Orleans kerosene price includes 1c parish tax in addition to 1c state tax.

†Kerosene price in Louisiana includes 1c state tax.

S. O. KENTUCKY

Ashland, Ky.	14	5	19	21	15
Catlettsburg, Ky.	15	5	20	21	15
Lexington, Ky.	14	5	19	20	14.5
Louisville, Ky.	15	5	20	22	13
Covington, Ky.	15	5	20	21	14.5
Clarksdale, Miss.	14	5	19	21	12.5
Gulfport, Miss.††	16.5	5	21.5	23.5	13
Jackson, Miss.	15	5	20	22	13
Natchez, Miss.	14.5	5	19.5	21.5	13
Vicksburg, Miss.	14.5	5	19.5	21.5	13
Birmingham, Ala.‡‡	16	4	20	22	14.5
Mobile, Ala.‡	14	4	18	18	13.5
Montgomery, Ala.*	17	4	21	23	15
Atlanta, Ga.	15	6	21	23	†15.5
Augusta, Ga.	14	6	20	22	†15.5
Macon, Ga.	16	6	22	24	†14
Savannah, Ga.	15	6	21	23	†14
Jacksonville, Fla.	15	6	21	23	14
Miami, Fla.	16	6	22	24	14

Latest Changes in Tank Wagon Prices

Gasoline

Atlantic Refining—S.s. only cut 2c, Erie, to 19c including 4c tax, **May 28.**

T.w. and s.s. up 1c thru Pennsylvania and Delaware, except Erie unchanged, **May 29.**

S. O. Ohio—T.w. up 1c, s.s. 2c, Ashtabula county, to statewide schedule of 20c and 21c, **May 29.**

S. O. Kentucky—S.s. only up 2c, Macon, to 24c, **May 24.**

S. O. Indiana—Correction: On Feb. 17 Bartlesville t.w. price only cut 2c to 16.5c, and s.s. unchanged. On April 12, t.w. and s.s. up 1c, to 17.5c and 20.5c, including 4c tax.

Magnolia Petroleum—T.w. and s.s. cut 2c, Dallas, to 14c and 18c, **May 24.**

T.w. cut 2c, s.s. 1c, Texarkana, to 14c and 15c, **May 23.**

S. O. California—T.w. and retail (plant) price cut 1c, Phoenix, to 17c and 21c, **May 27.**

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Tampa, Fla.	15	6	21	23	13
Pensacola, Fla.**	13	6	19	21	13.5

Note: Net price of gasoline to dealers is 2c under posted t.w. price thru S. O. Kentucky territory.

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included.

†Georgia kerosene prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

‡Mobile gasoline prices include 1c city tax.

‡‡Birmingham gasoline prices include 1c city tax.

S. O. NEBRASKA

Omaha, Neb.	15.25	4	19.25	21.25	13.25
McCook	16.75	4	20.75	22.75	14.75
Norfolk	15.75	4	19.75	21.75	13.75
North Platte	16.75	4	20.75	22.75	14.50
Scottsbluff	16.75	4	20.75	22.75	14.25

Note: Discounts: 1c per gal. off tank wagon price of gasoline for 1,000 gallon dumps per month to consumers taking tank wagon delivery only.

S. O. INDIANA

Chicago, Ill.	15	3	18	19	13
Decatur, Ill.	15.2	3	18.2	19.2	13.1
E. St. Louis, Ill.	14.4	3	17.4	18.4	12.2
Joliet, Ill.	15.4	3	18.4	19.4	13.3
Peoria, Ill.	15.2	3	18.2	19.2	13.1
Quincy, Ill.	15.2	3	18.2	19.2	12.9
Indianapolis, Ind.	15.2	4	19.2	20.2	14.2
Evansville, Ind.	15	4	19	20	14
South Bend, Ind.	15.4	4	19.4	20.4	14.4
Detroit, Mich.	15.8	3	18.8	19.8	14.7
Grand Rapids, Mich.	15.7	3	18.7	19.7	14.6
Saginaw, Mich.	15.9	3	18.9	19.9	14.8
Green Bay, Wisc.	15.6	2	17.6	18.6	13.4
Madison, Wisc.	15.3	2	17.3	18.3	13.1
Milwaukee, Wisc.	15.1	2	17.1	18.1	12.9
La Cross, Wisc.	16.2	2	18.2	19.2	14
Minneapolis, Minn.	16.2	3	19.2	20.2	13.9
Duluth, Minn.	16.5	3	19.5	20.5	13.9
Mankato, Minn.	16.1	3	19.1	20.1	13.7
Des Moines, Ia.	15.5	3	18.5	19.5	13.3
Davenport, Ia.	15.5	3	18.5	19.5	13.3
Sioux City, Ia.	15.1	3	18.1	19.1	12.9
Mason City, Ia.	15.5	3	18.5	19.5	13.3
St. Louis, Mo.	*14.9	2	16.9	17.9	12.3
Kansas City, Mo.	†15.9	2	17.9	18.9	11.6
St. Joseph, Mo.	†15.5	2	17.5	18.5	12.2
Fargo, N. D.	17.9	3	20.9	21.9	15.9
Grand Forks, N. D.	18.2	3	21.2	22.2	16.2
Minot, N. D.	17.9	3	20.9	21.9	15.9
Pierre, S. D.	16	4	20	21	14.4
Huron, S. D.	16.3	4	20.3	21.3	14.7
Wichita, Kans.	13.8	3	16.8	14.8	11.8
Bartlesville, Okla.	13.5	4	17.5	20.5	11.5

S. O. Indiana's quantity contract price schedule thru territory (except in Chicago and Detroit, which see below) on tank truck deliveries of gasoline, figured from the service station price is 2c for 500 gals. or more a month; 2½c for 2,000 gals. or more a month; 3c for 6,000 gals. or more a month; and 4½c for 75,000 gals. or more a month.

In Chicago and vicinity, these discounts apply: Over 500 gals. per month, 2c per gal. off service station price; over 1,000 gals. per month, 4c per gal. off service station price; over 50,000 gals. per month, 4½c per gal. off s.s. price; over 75,000 gals., 5c off.

In Detroit, dealers and consumers signing contract for all gasoline for one year, get 4c per gal. off s.s. price. Non-contracted accounts get 3c off s.s. price. Those buying 75,000 gals. or more a month, 4½c per gal. off s.s. price.

*Includes city tax of ½c.

†Includes city tax of 1c.

S. O. OHIO

Ohio state wide	16	4	20	21	†14
Athens, Hancock, Jackson, Muskingum, Perry, and Preble Counties:	15	4	19	19	14
Franklin (except Columbus west of river)	13	4	17	17	14

Note: Discount to dealers and commercial accounts generally thru Ohio is 2c per gal. off t.w. price with some exceptions. In counties where prices are below normal, discount is 3c per gal. off t.w. price.

†Kerosene t.w. price in Paulding County is 12c.

MAGNOLIA PETROLEUM

Muskogee, Okla.	12	4	16	19	9
Oklahoma City	12	4	16	19	10
Tulsa, Okla.	12	4	16	20	10
Fort Smith, Ark.†	10	†4	14	15	12
Little Rock, Ark.	13	5	18	19	13
Texarkana, Ark.*	10	4	14	15	12
Dallas, Tex.	10	4	14	18	12
Fort Worth, Tex.	12	4	16	19	12
Houston, Tex.	11	4	15	19	11
San Antonio, Tex.	11	4	15	19	11
El Paso, Tex.	12	4	16	20	13

*Within city of Texarkana, the state tax on gasoline is 4c per gal. conforming with the Texas state tax. In this district outside of the city the 5c Arkansas tax applies.

†Within city of Fort Smith, Oklahoma tax of 4c applies. In this district outside of the city, the 5c Arkansas tax applies.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

Greater New York City:					
Boroughs of Manhattan, Bronx, Queens & Kings	14.3	2	16.3	18.3	11.3
Borough of Richmond	14.7	2	16.7	18.7	11.7
Albany, N. Y.	15.6	2	17.6	19.6	12.6
Buffalo, N. Y.	14.8	2	16.8	18.8	11.8
Rochester, N. Y.	15	2	17	19	12
Syracuse, N. Y.	15.8	2	17.8	19.8	12.8
Boston, Mass.	14.5	2	16.5	18.5	11.5
Augusta, Me.	15.8	4	19.8	21.8	12.8
Manchester, N. H.	15.4	4	19.4	21.4	12.4

Above prices include these inspection fees on both gasoline and kerosene, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosene; Arkansas, 1/20c on both: Florida, 1/8c on both; Illinois, 3/100c on both; Indiana, 4/25c to 1/2c on both; Kansas, 3/50c on both; Louisiana, 1/32c on gasoline; Minnesota, 3/50c on both; Missouri, 3/10c to 1/2c on both; Nebraska, 3/100c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina, 1/8c on both; South Dakota, 1/10c on both; Tennessee, 2/5c on gasoline and 1/2c to 4/5c on kerosene; Wisconsin, 3/50c on both.

Kerosene inspection fees only, per gallon; Iowa 7/100c; Michigan 1/5c to 4/5c per gal.

Tank Wagon, Service Station Markets for Gasoline and Kerosene

Prices in Effect June 2, 1930

S. O. NEW YORK

	Gasoline Total T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Burlington, Vt.	16.3	4	20.3	22.3	13.3
New Haven, Conn.	15.6	2	17.6	19.6	12.6
Providence, R. I.	14.7	2	16.7	18.7	11.7

Note: S. O. New York allows 3c off t.w. price to dealers in New York City, and 2c off t.w. price thru rest of territory.

ATLANTIC REFINING

Pittsburgh, Pa.	16	*	16	22	13
Philadelphia, Pa.	16	*	16	22	13
Allentown, Pa.	16	*	16	22	13
Erie, Pa.	15	*	15	19	13
Scranton, Pa.	16	*	16	22	13
Altoona, Pa.	16	*	16	22	13
Dover, Del.	16	3	19	21	13
Wilmington, Del.	16	3	19	21	13
Boston, Mass.	14.5	2	16.5	18.5	11.5
Springfield, Mass.	15.5	2	17.5	19.5	12.5
Worcester, Mass.	15.3	2	17.3	19.3	12.3
Fall River, Mass.	14.1	2	16.1	17.1	12.1
Providence, R. I.	14.7	2	16.7	18.7	11.7
Hartford, Conn.	15.5	2	17.5	19.5	12.5
New Haven, Conn.	15.6	2	17.6	19.6	12.6
Atlantic City, N. J.	14.5	2	16.5	18.5	13.5
Camden, N. J.	13.6	2	15.6	17.6	12.6
Trenton, N. J.	14	2	16	18	13
Annapolis, Md.	14	4	18	20	13
Baltimore, Md.	13.2	4	17.2	19.2	10.5
Hagerstown, Md.	14.7	4	18.7	20.7	13.7
Richmond, Va.	13.7	5	18.7	20.7	12.7
Wilmington, N. C.	13.4	5	18.4	20.4	12.4
Brunswick, Ga.	15	6	21	23	**15
Jacksonville, Fla.	15	6	21	23	14

Note: 2c per gal. discount off t.w. price of gasoline on sales to dealers; discount to commercial accounts under contract for one year in accordance with Code of Ethics.

*4-cent state tax is collected by retail dealer and paid by him directly to state.

**Georgia kerosene prices include 1c state tax.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	14.7	16.7	17
Detroit	17.4	18.9	20.7
Kansas City	†15.9	†17.4	†19.2
Milwaukee	16.4	*19.9	*21.7
Minneapolis	**20.7	**22.2	**24
St. Louis	13.9	17.1	18.9
New York		16	23
Boston		19	23

*Includes 2c state tax. †Includes 1c city tax.
**Includes 3c state tax.

Petroleum Spirits (Solvent)

Tank Cars (F.o.b. refinery or seaboard terminal)	
New York harbor	11.00
Philadelphia district	11.00
Providence	11.50
Tank Wagon or Steel Barrels	
New York City	18
Syracuse	17–18
Rochester	18
Buffalo	17–18
Providence	19
Boston	19
Bridgeport	16–18
Newark	18
Philadelphia	16–17
Baltimore	18

Note: 2c off above t.w. prices to large buyers in some instances.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

	ONTARIO T.W.	Tax	Gasoline Total T.W.	S.S.	Oil T.W.
Toronto	19.5	5	24.5	28	20.5
Ottawa	19.5	5	24.5	28	20.5
North Bay	22.5	5	27.5	33	27
Ft. William	22.5	5	27.5	31	22.5
Border Cities, including Windsor	18.5	5	23.5	27	19.5
MANITOBA					
Winnipeg	21	5	26	30	21.5
SASKATCHEWAN					
Regina	26	5	31	35	26
ALBERTA					
Edmonton	27.5	5	32.5	36	27.5
Calgary	23.5	5	28.5	32	23.5
BRITISH COLUMBIA					
Vancouver	23	5	28	32	24
QUEBEC					
Montreal	20.5	5	25.5	29	21.5
Quebec City	21.5	5	26.5	30	22.5
Three Rivers	21.5	5	26.5	30	22.5
NEW BRUNSWICK					
St. John	20	5	25	29	22
Moncton	20	5	25	29	22
NOVA SCOTIA					
Halifax	20	5	25	29	22
PRINCE EDWARD ISLAND					
Charlottetown	20	5	25	29	22

Note: In districts surrounding these points 1c additional is added to city price.

Aviation Gasoline Prices

Following are tank wagon prices of aviation gasoline in principal marketing territories and showing state and municipal taxes:

S. O. NEW JERSEY

Prices in Effect June 2, 1930

	T.W.	Tax	Total
Newark, N. J.	17.4	*	17.4
Baltimore, Md.	16.2	4	20.2
Washington, D. C.†	19.5	2	21.5

*New Jersey road tax of 2c does not apply on aviation gasoline, exemption being claimed at time of purchase.

†Price at Washington is on Stanavo Aviation gasoline which sells at a 2c premium over "Standard" aviation gasoline.

S. O. OHIO

Thru Ohio	18	4	22

Discounts given by S. O. Ohio: For airport delivery only: 2,000 gals. or over per month, 1c per gal.; 6,000 gals. or over per month, 2c; 12,000 gals. and over per month, 3c.

S. O. INDIANA

Chicago	17	3	20
Indianapolis, Ind.	17.2	4	21.2
Detroit, Mich.	17.8	3	20.8
Milwaukee, Wis.	17.1	2	19.1
Minneapolis, Minn.	18.2	3	21.2
St. Louis, Mo.	16.4	2½	18.9
Kansas City, Mo.	16.9	3	19.9
Fargo, N. D.	19.9	3	22.9
Huron, S. D.	18.3	4	22.3
Wichita, Kan.	15.8	3	18.8

In S. O. Indiana territory, buyer pays state and city taxes on aviation gasoline, and if he can get a refund from the state, he does so. St. Louis tax of 2½c includes ½c city tax and Kansas City tax includes 1c city tax.

S. O. LOUISIANA

New Orleans, La.	16	5	21
Nashville, Tenn.	18	5	23
Memphis, Tenn.	17	5	22

2c per gal. discount off above t.w. prices to dealers and commercial consumers.

S. O. NEBRASKA

Omaha	18.25	4	22.25

2c per gal. refund to resellers.

CONTINENTAL OIL CO.

*Denver, Col.	16	4	20
Cheyenne, Wyo.	19.5	4	23.5
Helena, Mont.	25.5	5	30.5
Salt Lake City, Utah	19.5	3.5	23
†Albuquerque, N. M.	19	5	24
Boise, Ida.	22	5	27

*1c per gal. discount to dealers at Denver. †2c per gal. discount to dealers at Albuquerque.

S. O. CALIFORNIA

Phoenix, Ariz.	17	4	21
Los Angeles, Cal.	19.5	3	22.5
San Francisco, Cal.	20	3	23
Reno, Nev.	24	4	28
Portland, Ore.	19.5	4	23.5
Seattle, Wash.	19.5	3	22.5
Spokane, Wash.	23.5	3	26.5

4c per gal. discount off t.w. price of gasoline to customers taking tank truck delivery, through S. O. California territory, except 1c discount at Phoenix.

Correction

The name of E. W. Zublin, chief chemist of the Texas Pacific Coal & Oil Co., was misspelled in crediting him with the authorship of the paper on Determining the Properties of Natural Gasoline Blends by Charts, delivered before the recent convention of the Natural Gasoline Association in Tulsa, and published on Page 40 of the May 21st issue of NATIONAL PETROLEUM NEWS.

PITTSBURGH, May 22.—W. F. Lusch, formerly of the marketing firm of Lusch and Holbrook, of Pittsburgh, has recently become associated with the Willock Oil Corp. Mr. Lusch has had about 15 years' experience in the marketing of petroleum products.

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The exclusive Highland rocker sill mounting; trim, modern military front; weather-tight, flexible rubber-cushioned, polished, plate glass windshield; fine interior and exterior finish, all metal; and ample room—are but a few of the many in-built features that make Highland Coupe Cabs the favorites among truck users.

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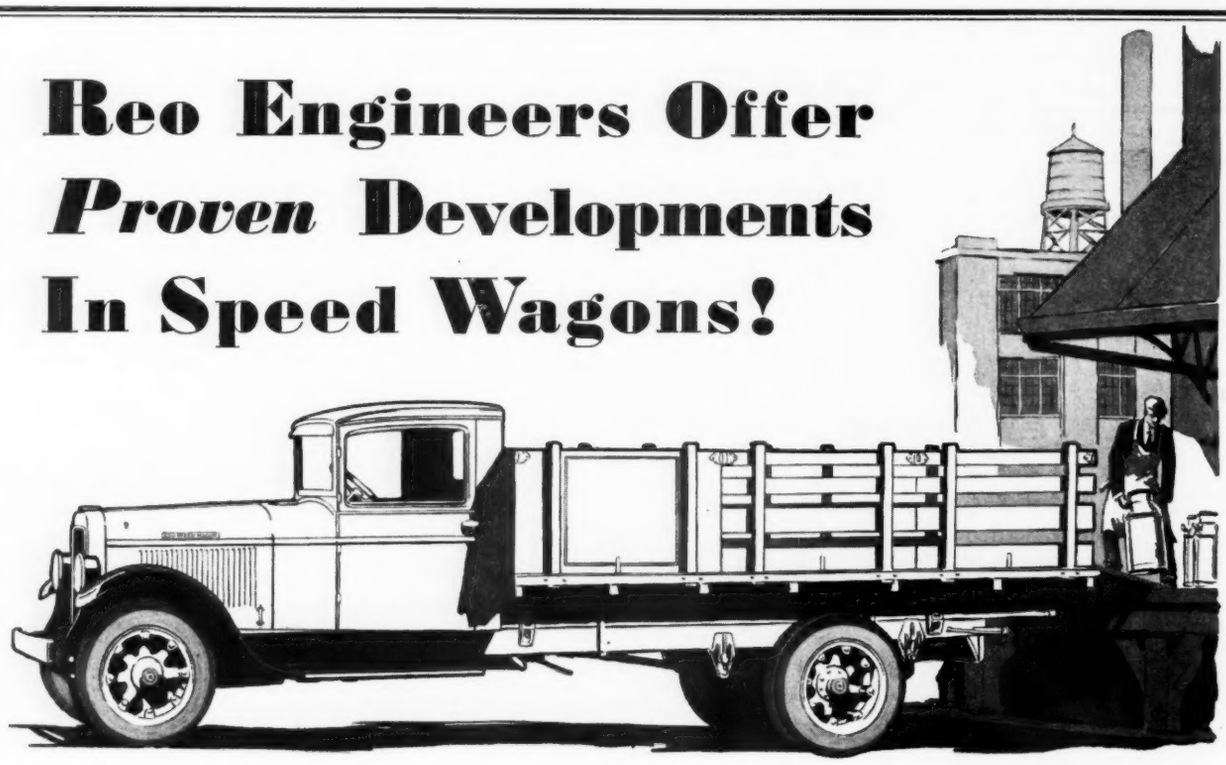
Cleveland, Ohio

Reo Engineers Offer *Proven* Developments In Speed Wagons!



This is the second summer for the Reo Gold Crown Engine, used *exclusively* in Speed Wagons.

No product of Reo engineering or Reo facilities ever gave greater satisfaction to users.

Many have gone more than 50,000 miles without a valve-grind . . . thousands with nothing more than that.

The Gold Crown Engine has everything known to engineering now:

We mix enough costly pure chromium into the nickel-iron cast to give you cylinder walls and valve seats seven times longer lived than ordinary gray iron castings.

To match it, we use Lo-Ex pistons, so tough that they outwear two to three ordinary pistons.

Seven bearings (you can't use more!) cradle the scientifically balanced crankshaft.

For most efficient cooling we put 6 gallons of water through the cylinders every 7 seconds, at top speed.

A simple device so diverts the water flow that all cylinders are kept within 4° temperature of each other.

Thus all "hot water pockets"—that account in the end for frequent recurring troubles in other engines and that no repair shop can correct—are eliminated.

We cool the oil, too, with a special oil-cooling engine pan into which the oil drips from the bearings and side walls.

We maintain an oil temperature from 25° to 40° lower according to atmospheric changes in the season, and the oil is cleaned . . . mark this . . . every trip to the bearings.

There is so much to tell—such as the balancing and matching of all reciprocating parts . . . how Reo Engineers give you long-lived construction by eliminating both Friction and Vibration.

Right back to the rear axle, we can recite equally interesting processes and methods.

Six cylinder 7-bearing engines . . . 4-wheel, two shoe, internal, hydraulic brakes . . . built-in magazine chassis oilers and other features.

Wheelbases up to 210" . . . all sizes up to 15,000 pounds net pay-load capacity with trailers . . . high pressure or balloon tires.

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Lansing, Michigan

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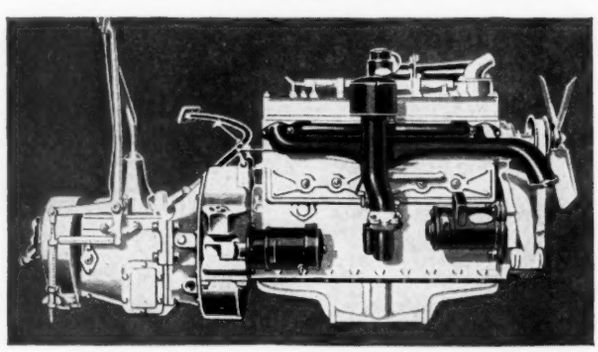

The Reo Gold Crown Engine 247-R

Crude Oil Prices (in Effect June 2, 1930)

(Crude prices for the whole year in OIL PRICE HANDBOOK published annually)

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

(All Penna. Grade Crude Effective May 16, 1930)

Bradford district in Bradford Transit lines (June 2, 1930).....$2.40
Bradford—Alleghany district (posted by Tide Water Pipe Co., Ltd.)..... 2.40
Penna. Grade Oil in National Transit Lines (Other Pennsylvania).....*2.30
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)..... 2.25
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)..... 2.15
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)..... 1.95
Wayne district crude in Cumberland lines (West Virginia) (Effective Apr. 11, 1930)... 1.34
Corning Grade in Buckeye Pipe Lines (Ohio) (Effective May 2, 1930)..... 1.75
Somerset Oil in Cumberland Pipe Lines (Kentucky) (Effective Apr. 11, 1930)..... 1.47
Somerset Oil in Eureka Pipe Lines (Effective Apr. 11, 1930)..... 1.31
Ragland Grade in Cumberland Pipe Lines (Kentucky) (Effective Jan. 29, 1929)....$0.60
*Oil run prior to July 1, 1929 is $2.25 per bbl.

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines (Effective Apr. 18, 1930).....$1.55

MICHIGAN

(Posted by Dixie Oil Co.)

Traverse and Dundee (Muskegon), effective April 16, 1930, same gravity and price schedule as Prairie posts in Oklahoma and Kansas, which see below.

(Posted by Pure Oil Co.)

Midland, Midland County (April 29, 1930)...$1.35

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Effective Apr. 11, 1930

Wooster	$1.80	Princeton	$1.65
Lima	1.70	Illinois	1.65
Waterloo	1.20	Plymouth	1.23
Indiana	1.47	West Kentucky	1.55

CANADIAN CRUDE

Posted by Imperial Oil Refineries, Ltd.

Petrolia.....$2.10
Oil Springs..... 2.17

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Prairie Oil & Gas Co.

(In Oklahoma and Kansas)

Effective Apr. 10, 1930

Below 25	$0.75	35-35.9	$1.255
25-25.9	0.80	36-36.9	1.29
26-26.9	0.85	37-37.9	1.325
27-27.9	0.90	38-38.9	1.36
28-28.9	0.95	39-39.9	1.395
29-29.9	1.00	40-40.9	1.43
30-30.9	1.05	41-41.9	1.465
31-31.9	1.10	42-42.9	1.50
32-32.9	1.15	43-43.9	1.535
33-33.9	1.185	44 and above...	1.57
34-34.9	1.22		

(In North Texas: Ranger, Wichita Falls, Mexia)

Effective Apr. 10, 1930

Below 25	$0.72	30-30.9	$1.02
25-25.9	0.77	31-31.9	1.07
26-26.9	0.82	32-32.9	1.12
27-27.9	0.87	33-33.9	1.17
28-28.9	0.92	34-34.9	1.22
29-29.9	0.97	35-35.9	1.255
36-36.9	$1.29	41-41.9	$1.465
37-37.9	1.325	42-42.9	1.50
38-38.9	1.36	43-43.9	1.535
39-39.9	1.395	44 and above..	1.57
40-40.9	1.43		

The Texas Co., same schedule in Oklahoma as Prairie in Oklahoma; and in North Texas, North Central Texas and Central Texas same as Prairie and Humble in North Texas, effective Apr. 10.

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Boggy Creek, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

Humble's prices in above fields same as Prairie's prices in North Texas, effective Apr. 10, which see.

Magnolia Petroleum Co.

(In Oklahoma, Kansas and North and East Central Texas)

Below 26	$0.70	28-28.9	$0.88
26-26.9	0.76	29-29.9	0.95
27-27.9	0.82	30-30.9	1.02

Rest of Magnolia schedule up to 44 and above same as Prairie in Oklahoma and Kansas.

Apr. 10, 1930, Glasscock, Crane, Upton, Winkler, Howard and Mitchell Counties same prices as Humble's postings in Winkler, Crane, etc., which see

Corsicana heavy	$0.80
Luling	0.85
Mirando	0.85
Darst Creek, 60° F. gravity	1.15

Carter Oil Co.

(Oklahoma and Kansas)

Apr. 10, 1930, same schedule as Prairie, which see.

PANHANDLE TEXAS

Humble Oil & Refining Co.

Effective Apr. 10, 1930

Hutchinson and Carson Counties:

Below 32	$0.775	38-38.9	$1.065
32-32.9	0.825	39-39.9	1.10
33-33.9	0.875	40-40.9	1.135
34-34.9	0.925	41-41.9	1.17
35-35.9	0.96	42-42.9	1.205
36-36.9	0.995	43-43.9	1.24
37-37.9	1.03	44 and above...	1.275

Gray County:

Below 29	$0.755	37-37.9	$1.16
29-29.9	0.805	38-38.9	1.195
30-30.9	0.855	39-39.9	1.23
31-31.9	0.905	40-40.9	1.265
32-32.9	0.955	41-41.9	1.30
33-33.9	1.005	42-42.9	1.335
34-34.9	1.055	43-43.9	1.37
35-35.9	1.09	44 and above...	1.405
36-36.9	1.125		

Wheeler County: Posted by Magnolia Pet. Co. Humble withdrew Wheeler county postings Apr. 10.

Below 30	$0.755	37-37.9	$1.11
30-30.9	0.805	38-38.9	1.145
31-31.9	0.855	39-39.9	1.18
32-32.9	0.905	40-40.9	1.215
33-33.9	0.955	41-41.9	1.25
34-34.9	1.005	42-42.9	1.285
35-35.9	1.04	43-43.9	1.32
36-36.9	1.075	44 and above...	1.355

Above prices met by The Texas Co. and Magnolia on Apr. 10.

WEST TEXAS AND NEW MEXICO

Humble Oil & Refining Co.

Effective Apr. 10, 1930

Winkler, Crane, Upton, Crockett, Ector, and Pecos Counties, also Lea County, N. Mex.

Below 25	$0.65	31-31.9	$0.86
25-25.9	0.68	32-32.9	0.89
26-26.9	0.71	33-33.9	0.92
27-27.9	0.74	34-34.9	0.95
28-28.9	0.77	35-35.9	0.98
29-29.9	0.80	36 and above...	1.01
30-30.9	0.83		

Howard and Glasscock counties:

Effective Apr. 10, 1930

Below 25	$0.65	31-31.9	$0.82
25-25.9	0.68	32-32.9	0.84
26-26.9	0.71	33-33.9	0.86
27-27.9	0.74	34-34.9	0.88
28-28.9	0.76	35-35.9	0.90
29-29.9	0.78	36 and above...	0.92
30-30.9	0.80		

Apr. 10, 1930, The Texas Co. posted same prices in Crane, Upton, Winkler and Lea counties as Humble.

SOUTH AND SOUTHWEST TEXAS

(Posted by Humble Oil & Refining Co.)

Effective Apr. 10, 1930

Mirando	$0.85
Salt Flat	1.15
Darst Creek	1.15
Pettus, Bee County	1.40

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana

Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton, De Soto, and Sabine.

Effective Apr. 11, 1930

Below 28	$0.87	36-36.9	$1.29
28-28.9	0.92	37-37.9	1.325
29-29.9	0.97	38-38.9	1.36
30-30.9	1.02	39-39.9	1.395
31-31.9	1.07	40-40.9	1.43
32-32.9	1.12	41-41.9	1.465
33-33.9	1.17	42-42.9	1.50
34-34.9	1.22	43-43.9	1.535
35-35.9	1.255	44 and above...	1.57

Cotton Valley, Sarepta and Carterville below 36 gravity, $0.85. Rest of schedule same as Caddo, Homer. etc.

Smackover, below 24	$0.90
do 24 and above	1.05
Bellevue (Apr. 11, 1930)	1.15
*Urania, La. (Apr. 11, 1930)	0.95
†East El Dorado (Calion) (Apr. 11, 1930)	0.90

*Posted by Louisiana Oil Refining Corp.
†Posted by Magnolia Petroleum Co.

Apr. 10, 1930, The Texas Co. same schedule in Louisiana as Standard, plus these grades: 24-24.9, $0.67; 25-25.9, $0.72; 26-26.9, $0.77; 27-27.9, $0.82.

Apr. 11, Magnolia met Standard schedule in Louisiana-Arkansas fields.

STEPHENS, ARKANSAS

Lousiana Oil Refining Corp., and Atlantic Oil Producing Co.

Effective Apr. 11, 1930

Below 28	$0.76	30-30.9	$0.91
28-28.9	0.81	31-31.9	0.96
29-29.9	0.86	32 and above...	1.01

GULF COASTAL

Posted by Humble Oil & Refining Co.

Effective Apr .10, 1930

Grades A	$1.15	34-34.9	$1.30
Grades B:		35-35.9	1.33
Below 25	1.00	36-36.9	1.36
25-25.9	1.03	37-37.9	1.39
26-26.9	1.06	38-38.9	1.42
27-27.9	1.09	39-39.9	1.44
28-28.9	1.12	40-40.9	1.46
29-29.9	1.15	41-41.9	1.48
30-30.9	1.18	42-42.9	1.50
31-31.9	1.21	43-43.9	1.52
32-32.9	1.24	44 and above...	1.54
33-33.9	1.27		

Refugio county (rest of schedule, same as Grades B, which see above).

Below 25	$0.85
25-25.9	1.03

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling, Humble, Pierce Junction, Sugarland and Raccoon Bend. All other fields are Grades A only.

Specifications for Grade "A" crude: Gravity: 25° and below, at 60° F; Viscosity: not less than 100 seconds at 100° F Saybolt.
Sulfur: not over .4%.

Grade "B" includes all Coastal crude which does not meet the test for "A" grades.

Refinery Standardization Committee to Meet

CLEVELAND, May 31.—First meeting of the new American Petroleum Institute committee on standardization of refinery equipment will be held at the Stevens hotel, Chicago, June 9. The committee will be organized at that time and plans for future activities discussed.

Henry Thomas, Sun Oil Co., Philadelphia, is chairman and R. P. Anderson, American Petroleum Institute, New York, is secretary. Members are: Mark W. Daw, Shell Oil Co., San Francisco; C. H. Haupt, Standard Oil Development Co., Elizabeth, N. J.; K. V. King, Standard Oil Co. of California, San Francisco; W. D. Kinsell, Pure Oil Co., Chicago; F. P. Risdon, The Texas Co., New York, and Walter Samans, The Atlantic Refining Co., Philadelphia.

Crude Price Changes

OIL CITY—On June 2 Bradford district crude in Bradford Transit lines was reduced 10 cents, making new price $2.40 per barrel.

BRADFORD, Pa.—On June 2 the Tide Water Pipe Co., Ltd., met the 10 cent cut on Bradford-Alleghany district crude posted by the Bradford Transit Co., making the new price $2.40 per barrel.

DAYTON, O.—M. K. Harper, after a brief leave of absence from The Refiners Oil Sales Co. here, is back on the job covering western Ohio, according to W. B. Pitzer, sales manager.

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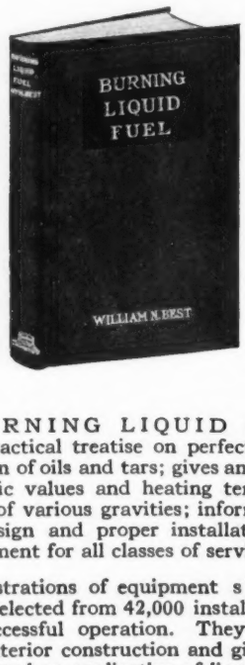

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Crude Oil Prices (in Effect June 2, 1930)

(Prices are per barrel at the well)

(Crude Oil Prices for the whole year in OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

Effective Apr. 10, 1930

Grades A.....$1.15 *Grades B.....$1.00

*Grades B include all heavy crudes which do not meet tests for Grades A or for Grades B light crude. Prices for Grades B light crude are the same as Humble's, which see.

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective Apr. 10, 1930)

‡Salt Creek 29–29.9	$1.00
" " 30–30.9	1.05
" " 31–31.9	1.10
" " 32–32.9	1.15
" " 33–33.9	1.185
" " 34–34.9	1.22
" " 35–35.9	1.255
" " 36–36.9	1.29
" " 37 and above	1.325
Elk Basin	1.55
Grass Creek light	$1.55
Big Muddy	1.38
Lance Creek	1.63
Rock Creek	1.35
Mule Creek	1.20
Rex Lake	1.10
‡Osage	1.63
‡Cat Creek, Mont.	1.55
Sunburst, Mont.	1.65
‡Hogback, N. Mex.	1.40
Artesia, N. Mex.	1.05

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

CALIFORNIA

Standard Oil Co. of California

(Effective March 11, 1930)

Gravity	Signal Hill Seal Beach Alamitos Heights Huntington Beach Inglewood* Olinda-Brea Canon*	Athens Rosecrans Domingues	Elwood Terrace	Torrance Richfield	Whittier La Habra	Montebello	Coyote	Santa Fe Springs (Effective May 17, 1930)	Newhall McKittrick Kern River	Midway-Sunset Elk Hills Buena Vista Hills Lost Hills	Coalinga	Wheeler Ridge	Kettleman Hills	Orcutt (Santa Maria) (Union Oil Co.)	Santa Paula (Ventura) (Union Oil Co.)	Ventura Avenue (Associated Oil Co.
14–14.9**	$0.70	—	....	$0.70	$0.70	$0.70	$0.70	....	$0.55	$0.55	$0.55	$0.55	....	$0.55	$0.70	$0.70
15–15.9	.70	—	....	.70	.70	.70	.70	....	.55	.55	.55	.55	....	.55	.70	.70
16–16.9	.70	....	....	.70	.70	.70	.70	....	.55	.55	.55	.55	$1.65	.55	.70	.70
17–17.9	.70	....	....	.70	.70	.70	.70	....	.55	.55	.55	.55	for	.55	.70	.70
18–18.9	.76	....	....	.76	.76	.71	.76	....	.55	.62	.62	.62	55°	.65	.75	.76
19–19.9	.82	....	....	.82	.82	.77	.82	....	.55	.70	.70	.70	gravity	.70	.80	.82
20–20.9	.88	....	....	.88	.87	.83	.87	....	....	.78	.78	.78	and	.78	.85	.88
21–21.9	.94	....	....	.94	.93	.90	.93	$0.50	....	.86	.86	.86	over	.90	.90	.91
22–22.9	1.00	....	....	1.00	.98	.97	.98	.50	....	.94	.94	.94	....	.95	.97	.94
23–23.9	1.07	....	....	1.07	—	1.05	1.04	.50	....	1.02	1.02	1.02	....	1.02	1.05	1.00
24–24.9	1.14	1.14	....	1.14	....	1.11	1.10	.50	....	1.09	1.07	1.07	....	1.10	1.08	1.07
25–25.9	1.21	1.19	....	1.21	....	1.17	1.16	.50	....	1.16	1.12	1.12	....	1.18	1.13	1.14
26–26.9	1.28	1.24	....	1.28	....	1.23	1.23	.50	....	1.23	1.17	1.17	....	1.26	1.18	1.21
27–27.9	1.35	1.29	....	1.35	....	1.29	1.30	.50	....	1.30	1.23	1.22	....	....	1.23	1.28
28–28.9	1.42	1.34	....	1.42	....	1.35	1.37	.56	....	1.35	1.27	....	....	....	1.28	1.35
29–29.9	1.46	1.39	—	†1.46	....	1.38	1.41	.62	....	1.41	1.31	....	....	....	1.33	1.39
30–30.9	1.50	1.45	—	†1.50	....	1.41	1.45	.68	....	1.47	1.35	....	....	....	1.39	1.43
31–31.9	1.55	1.51	....	....	....	....	....	.74	....	1.53	1.39	....	....	....	1.45	1.48
32–32.9	1.60	1.57	....	....	....	....	....	.80	....	1.59	1.43	....	....	....	1.51	1.53
33–33.9	....	1.64	....	....	....	....	....	.85	—	1.65	1.47	....	....	....	1.58	1.59
34–34.9	....	1.71	1.32	....	....	....	....	.90	....	††1.71	1.51	....	....	....	....	1.65
35–35.9	....	1.78	1.39	....	....	....	....	.95	....	††1.77	1.55	....	....	....	....	1.71
36–36.9	....	1.84	1.46	....	....	....	....	....	....	....	....	....	....	....	....	....
37–37.9	....	1.90	1.53	....	....	....	....	....	....	....	....	....	....	....	....	....
38–38.9	....	1.96	1.60	....	....	....	....	....	....	....	....	....	....	....	....	....
39–39.9	....	2.02	1.66	....	....	....	....	....	....	....	....	....	....	....	....	....
40–40.9	....	2.08	1.72	....	....	....	....	....	....	....	....	....	....	....	....	....
41–41.9	....	2.14	1.78	....	....	....	....	....	....	....	....	....	....	....	....	....
42–42.9	....	2.20	1.84	....	....	....	....	....	....	....	....	....	....	....	....	....

*Inglewood prices run only to 28.9 gravity; Olinda-Brea Canon to 31.9 gravity.
†Richfield crude only. ††These two grades apply on Lost Hills only.
**Standard does not contract for crude testing below 14 gravity, but pays 45c per barrel when purchased

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders effective on the date shown.

Refiners' Supplies

	June 2	May 26
Soda Ash light 58% bags, cwt.	$1.32	$1.32
Silicate of Soda 60 deg. drums, cwt.	$1.55	$1.55
Silicate of Soda 40 deg. tank cars, cwt.	$0.60	$0.60
Silicate of Soda 40 deg. drums cwt.	$0.80	$0.80
Sal Soda wks.	$1.00–1.05	$1.00–1.05
Caustic Soda 76% solid, cwt.	$2.90	$2.90
Sulfuric Acid 60 deg. tank cars, f.o.b. shipping point per ton	$11.00	$11.00
Oleum 20%, fuming sulfuric, tank cars, wks.	$18.50	$18.50
Sulfur, flowers of, cwt.	$3.10–4.00	$3.10–4.00
Liquid Chlorine, tank cars, wks., lb.	3.50–5.00	3.50–5.00

Compounders' Supplies

	June 2	May 26
Vegetable Oils		
Linseed carloads, spot, lb.	14.20	14.20
Tanks, spot	13.40	13.40
Soya Bean, Tank, coast, lb.	9.75	9.75
Oleic Acid		
Distilled, tanks, lb.	9.25–9.50	9.25–9.50
Distilled, bbls., lb.	10.125–10.375	10.125–10.375
Saponified, tanks, lb.	9.25	9.25
Saponified, bbls., lb.	10.125–10.625	10.125–10.625
Lard Oils		
Prime Winter Strained, lb.	13.125	13.125
Extra Winter Strained, lb.	11.25	11.25
Extra, lb.	11 00	11.00
Extra No. 1, lb.	10.50	10.50
No. 1, lb.	10.25	10.25
No. 2, lb.	10.00	10.00
Tallow oil, lb.	10.00	10.00
Neatsfoot Oil		
Pure, bbls., lb.	13.00	13.00
Extra, bbls., lb.	11.25	11.25
No. 1 bbls., lb.	10.75	10.75
Cold Pressed, lb.	17.50	17.50
Fish Oils		
Menhaden Oil		
Light Pressed, gal.	63–65	63–65
Light Pressed, tank cars, N. Y., gal.	53	53
White bleached, gal.	67	67
Yellow bleached, gal.	61	61
Whale, extra winter bleached, gal.	85	85
Naval Stores		
Steam, distilled turpentine, N. Y., gal.	42	42
Steam distilled turpentine, Savannah, gal.	41	38
Gum turpentine, N. Y., gal.	50	50
Gum turpentine, f.o.b. cars Savannah, gal.	43	44
Wood Rosin, N.Y., gal.	$6.46	$6.46
Wood Rosin F, Savn'h, bbl.	$5.70	$5.70
Gum Rosin B, N. Y., bbl.	$6.50	$6.50
Gum Rosin B, f.o.b. cars Savannah, bbl.	$5.10	$5.25
Rosin oil, pure, gal.	57	57
Rosin oil, compounded, gal.	50	50
Pine Tar		
Kiln burnt, bbl.	$13.00–14.00	$13.00–14.00
Retort, bbl.	$13.50–14.50	$13.50–14.50
Alcohol		
Denatured Formula 5, in bbls., per gal.	49–53	49–53

OIL STOCKS AND FINANCES

National Petroleum News

Pierce Petroleum Assets Cost Sinclair About $20,000,000

CLEVELAND, May 31

SINCLAIR CONSOLIDATED OIL CORP. is paying close to $20,000,000 for the assets and business of the Pierce Petroleum Corp. Pierce stockholders are to vote on the proposed sale June 12. Approval is expected because the largest Pierce stockholders have expressed their approval already.

Sinclair is paying 645,835 shares of its stock for property, other assets, business and good-will. It is paying 20,833 shares for commissions and legal expense Pierce will have to pay to complete the sale. At the closing price of Sinclair stock May 29, $27.75 a share, this total amount of stock was worth $18,500,009.25.

Sinclair also is to advance money to retire the Pierce $6 no par cumulative preferred stock of which 10,500 shares were outstanding last Dec. 31. Pierce carried the preferred stock on its books at $1,402,500. This makes a total of $19,902,509.25.

Sinclair also is to pay certain other obligations of Pierce and Federal income taxes up to $500,000. Pierce had a reserve of $516,190 for income taxes and other contingencies last Dec. 31.

The Pierce stock is redeemable at $102 at the rate of 1000 shares each year.

W. H. Coverdale, Pierce chairman, in a letter to stockholders said:

"As a condition of the sale the Sinclair corporation will assume: (a) All current liabilities of the corporation; (b) all contract obligations of the corporation, with certain exceptions; (3) all liabilities of the corporation in respect to litigations, with certain exceptions; and (d) all liabilities of the corporation for United States Federal income taxes for the year 1929 and prior years, up to $500,000.

"For the year 1929 regular dividends of 50 cents per share per quarter were paid on Sinclair stock, besides two extra dividends—each for 25 cents per share. If on July 15, 1930 (the next dividend date for Sinclair stock), a regular dividend of 50 cents per share (only) is paid on the 545,834 shares of Sinclair stock to be received by the corporation, this dividend will, in the opinion of your board of directors, be sufficient in amount to enable the corporation to discharge all its liabilities (other than those that are to be assumed by the Sinclair corporation); and subsequent dividend distributions (if at the same rate) will, in the opinion of your board of directors, make possible dividend distributions aggregating not less than 50 cents per year on each share of Pierce Petroleum stock. Any extra or increased dividends on Sinclair stock will, of course, permit of the payment of additional dividends on Pierce Petroleum stock.

"If and when the 645,834 shares of Sinclair stock should, in the future, be distributed among the holders of the 2,500,000 shares of outstanding Pierce Petroleum stock, the holder of each four shares of Pierce Petroleum stock should receive instead somewhat more than one share of Sinclair stock.

"Your directors unanimously recommend that the stockholders authorize the proposed sale.

"Since its organization, approximately six years ago, the corporation has been unable to secure any appreciable amount of crude oil production, due largely to insufficient financial resources for that purpose. Moreover, in recent years the tendency in the oil industry has been decidedly in favor of large units—more especially units covering all branches of the industry from production to distribution and covering the entire United States as a field for operations.

Against competition such as this the prospect for the payment of dividends on the stock of the corporation (except as a result of a sale such as is now proposed) are far from bright, and, while the property and business of the corporation are of undoubted worth, they are of far greater value to a large, completely rounded unit such as the Sinclair corporation than to a small company such as Pierce Petroleum.

"To consummate the proposed sale the vote of two-thirds in amount of the outstanding stock of the corporation is required."

Doherty and S. O. Jersey Form New Company

NEW YORK, May 31.—Henry L. Doherty & Co. have announced the formation of the Paraguana Petroleum Co. by subsidiaries of the Cities Service Co. and Standard Oil Co. (N. J.) to develop holdings in the Paraguana peninsula of Venezuela.

It was announced the contract between the two companies calls for the immediate development of 400,000 acres of potential oil lands. Control of the new company eventually will pass to Cities Service, it is announced.

The land is said to be more accessible than the Lake Maracaibo fields because it is not necessary to cross the dangerous Maracaibo bar.

Hammonds Buy Control Of Atlantic-Pacific

NEW YORK, May 31.—John Hays Hammond and Harris Hammond head a group that has purchased 1,212,300 shares of the 2,000,000 authorized shares of the Atlantic-Pacific Oil Exploration Co. Fisher brothers of Detroit are reported to be members of the group.

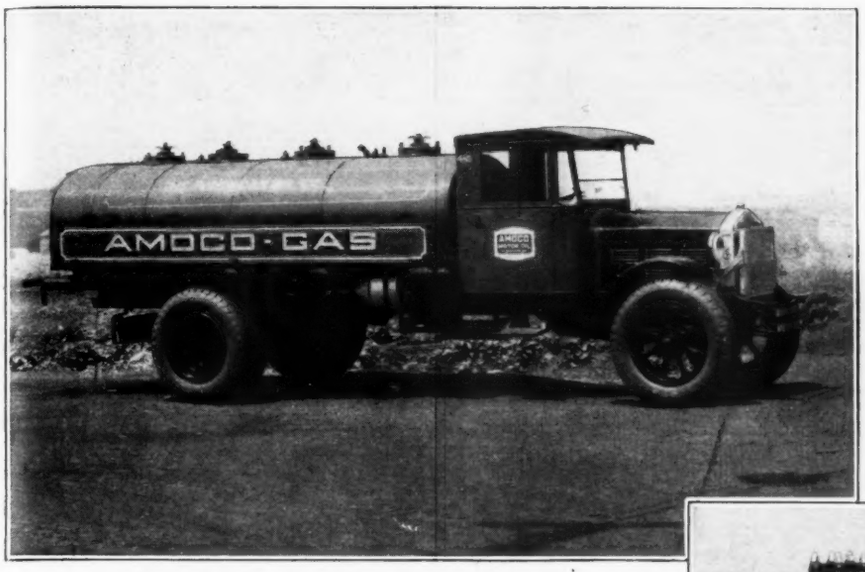
The company's holdings comprise 121,115 acres in Wyoming, Montana and Michigan. The company claims production of 2000 barrels of crude oil daily from the Dallas and Derby domes in Wyoming and 25,000,000 cubic feet of gas daily in the Baker-Glendive district of Montana.

The Hammonds also are interested in Mexican Seaboard Oil Corp.

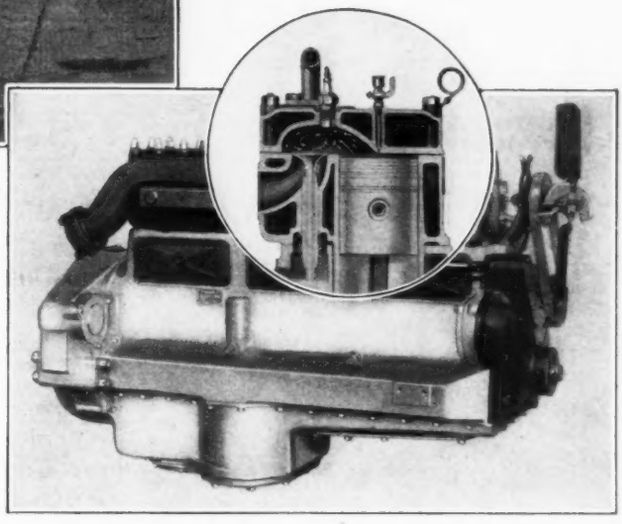
Seeks All of Anglo-American

NEW YORK, May 31.—Standard Oil Export Corp. proposes to increase the amount of its 5 per cent preferred stock from $75,000,000 to $77,000,000 to acquire the remaining outstanding ordinary stock of the Anglo-American Oil Co. Ltd. The offer for the remaining outstanding stock, which is less than 6 per cent of all Anglo-American ordinary stock, is the same as the original offer: one share of Standard Oil Export preferred for 5 5/9 Anglo-American ordinary shares.

MORE POWER from a gallon of gasoline



Cut delivery time and operating costs with the speedy STERLING DW-18 . . . . . 4½ ton, worm drive six.

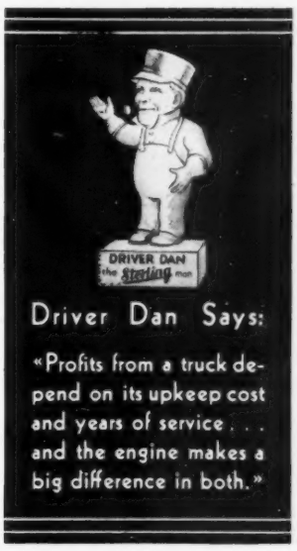


Hauling costs are being cut with Sterling Trucks . . . . because of the *many economy features* that *only Sterling* can build in. *One* of them is a more reliable engine. Equipped with the genuine *Red Head* Ricardo Combustion Chamber, it develops far greater power output from a gallon of gasoline . . . . and gives more years of low upkeep service.

The converting of raw fuel into power takes place in the engine's combustion chamber. The *Red Head* Ricardo Combustion Chamber . . . . by its proportions, shape and properly placed spark plug . . . . controls the *turbulence*, or agitation of the explosive mixture, which assures proper firing. The result is rapid and complete combustion . . . after-burning is eliminated . . . and every part of the gas is *completely* burned and converted into useful power.

"Anti-knock" fuel is not necessary. The *Red Head* Ricardo Head Combustion Chamber not only permits higher compression but eliminates engine-wrecking "ping" or detonation. No after-burning means that exhaust valves stand up longer. Complete combustion assures far less formation of carbon and an almost total elimination of crankcase dilution.

For the complete story write to Driver Dan, in care of Sterling Motor Truck Co., Milwaukee, Wisconsin.


DRIVER DAN
the Sterling man
Driver Dan Says:
"Profits from a truck depend on its upkeep cost and years of service . . . and the engine makes a big difference in both."

STERLING MOTOR TRUCK COMPANY, Milwaukee, Wis.

Factory Branches in Principal Cities

Portland, Boston, Springfield, Worcester, Providence, Bronx, Long Island City, Camden, Newark, Trenton, Baltimore, Erie, Philadelphia, Pittsburgh, Reading, Akron, Youngstown, Detroit, Chicago, St. Louis, Bakersfield, Fresno, Los Angeles, Oakland, Sacramento, San Bernardino, San Diego, San Francisco, San Jose, Stockton, Klamath Falls, Portland, Seattle, Spokane

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Sterling TRUCKS

Transactions in Oil Shares on New York Stock Exchange

1929 High	1929 Low	1930 High	1930 Low	Listed Shares	Par Value	Company	Div. Rate	Last Paid	Transactions Week Ended May 31 Sales	First	High	Low	Last	Change
42⅝	17½	42¼	20½	922,075	N.P.	Amerada Corp.	50cQ	Apr. 30, 30	16,800	26¼	28⅝	25½	27½	+ 1⅞
64¾	12½	37	20½	209,180	N.P.	American Republics Corp.	....	.....	1,400	24⅛	26¼	24	26¼	+ 1
47¼	34½	50¼	32½	2,240,000	$25	Associated Oil	50cQ	Mar. 31, 30	520	49½	50	46	50	+ 2½
77⅞	30	51⅝	36¼	2,683,868	25	Atlantic Refining Co.	‡25cQ	Mar. 15, 30	15,900	42	44	41½	43⅝	+ 1⅜
49⅛	20	34	20½	2,257,108	25	Barnsdall Corp. A	50cQ	May 7, 30	9,600	26¾	27¾	26⅜	27	+ ¼
34½	25	29⅝	28	2,060,966	25	California Petroleum Corp.	....	Jan. 1, 29	.....	....	....	....	....	.....
32⅞	12½	20⅝	13	1,444,970	N.P.	Colonial Beacon Oil Co.	....	.....	200	16⅛	16⅛	16	16	— ⅛
37⅜	18	30½	19½	4,610,258	N.P.	Continental Oil (Delaware)	....	.....	27,600	26⅝	27¾	26½	27½	+ 1¼
94⅜	42¼	71⅛	49⅛	410,857	$100	General Asphalt Co.	$1Q	Mar. 15, 30	9,000	57½	60¾	57½	59⅝	+ 2
109	26	116⅞	52¼	250,000	100	Houston Oil	....	.....	36,900	97¾	102½	97½	102	+ 4⅛
39⅜	17¾	32	20¼	1,379,295	N.P.	Independent Oil & Gas	50cQ	Apr. 30, 30	8,700	25¼	27	25¼	25¾	+ ⅜
53	13⅛	28⅜	16	699,066	10	Indian Refining	....	Dec. 15, 20	26,100	18¼	19⅛	18	18¼	+ ⅜
51¼	11½	27¾	15½	568,816	10	do certificates	....	.....	9,600	17¼	18⅛	17¼	17⅜	+ ⅛
38⅜	16½	26½	21¼	3,994,150	N.P.	Lago Oil & Transport	....	Aug. 2, 27	100	24⅞	24⅞	24⅞	24⅞	+ ⅞
18	7	12	8	1,187,701	N.P.	Louisiana Oil Refining	....	.....	1,700	10	10	9⅝	10	0
100¼	80	89½	84	40,000	$100	do pfd.	$1.62½Q	May 15, 30	.....	....	....	....	....	.....
18½	5⅞	10⅜	5⅜	330,000	N.P.	Maracaibo Oil Exploration	....	.....	200	7¼	7¼	7¼	7¼	0
295	176	179	176	459,428	$100	Mexican Petroleum	$3Q	Apr. 21, 30	.....	....	....	....	....	.....
105	102	....	....	120,000	100	do pfd.	$2Q	Apr. 21, 30	.....	....	....	....	....	.....
69⅜	9¼	37	16⅜	1,244,383	N.P.	Mexican Seaboard Oil	....	Oct. 15, 24	49,900	28½	30⅞	28¼	30⅛	+ 2
39⅞	22⅜	33	23½	1,899,138	N.P.	Mid-Continent Petroleum	50cQ	May 15, 30	3,200	27¼	28½	27¼	28½	— 1⅛
3⅝	¾	2½	⅞	908,171	N.P.	Middle States Oil ctfs.	....	.....	3,800	1⅜	1½	1¼	1¼	— ⅛
69	40¼	64¼	51⅝	1,000,000	$50	Pan American Petrol. & Trans.	....	Oct. 20, 27	300	61	61	60	60	— ⅛
69¼	40½	67½	50½	2,422,221	50	do B	....	Oct. 20, 27	6,000	63⅜	65	62⅛	63¼	+ ⅜
15¼	3	12¾	4⅛	199,370	N.P.	Panhandle Prod. & Refg.	....	.....	5,400	11	11¾	10½	10⅞	— ⅛
76	47½	80	47½	25,666	$100	do pfd.	....	July 2, 23	.....	....	....	....	....	.....
.....	.....	.....	.....	.....	.....	Petroleum Corp. of America	....	.....	7,400	26¾	26½	25⅞	26¼	0
47	24¼	44¾	29⅛	2,670,089	N.P.	Phillips Petroleum Co.	50cQ	Apr. 1, 30	26,300	38⅛	38½	37⅝	38	— ⅛
3⅜	1	2½	1	1,184,917	$25	Pierce Oil Corp.	....	.....	3,100	1⅝	1¾	1⅝	1¾	+ ⅛
51½	20	52	20½	150,000	100	do pfd.	....	Feb. 1, 22	1,300	40	41⅛	38½	38½	— 1½
5⅞	½	7⅜	2¼	2,500,000	N.P.	Pierce Petroleum Corp.	....	.....	12,700	6	6⅛	5⅞	6	+ ⅛
65⅝	40½	54	45	2,435,670	$25	Prairie Oil & Gas Co.	50cQ	Mar. 31, 30	1,500	46	46½	45⅞	46¼	+ 1⅛
65	45	60	50¼	4,050,000	25	Prairie Pipe Line Co.	‡75cQ	Mar. 31, 30	2,800	52	52¼	50¾	51	+ ¼
25⅞	4	11⅞	6½	749,017	50	Producers & Refiners Corp.	....	Sept. 15, 30	4,100	8½	11¼	8½	10½	+ 2¼
46¾	25½	38	35	56,907	50	do pfd.	....	May 4, 25	460	38	*38	35	38	+ 3
30¾	20	27¼	21⅛	3,038,370	25	Pure Oil Co.	37½cQ	June 2, 30	13,400	23	23¼	22⅜	22⅞	— ⅛
116	108	114¼	110½	130,000	100	do 8% pfd.	$2Q	Apr. 1, 30	60	113⅞	114	112⅜	113¼	— ⅝
49⅝	22⅜	28¼	20⅜	2,101,550	25	Richfield Oil (California)	50cQ	May 15, 30	18,100	21⅞	23⅛	21⅞	22⅝	+ ⅜
42½	15	25¾	16½	1,235,270	N.P.	Rio Grande Oil Co.	50cQ	Apr. 25, 30	3,300	21	21⅞	21	21¾	+ ⅝
64	43⅛	56½	49¼	951,310	$13.40	Royal Dutch (N. Y. shares)	$1.3415	Feb. 15, 30	4,200	53½	53⅞	53	53⅜	— ⅝
55¾	43⅜	48⅜	42⅜	77,492	£2	Shell Transp. & Trading	97c	Jan. 28, 30	.....	....	....	....	....	.....
31¾	19	25½	20⅛	13,069,076	N.P.	Shell Union Oil Corp.	35cQ	Mar. 31, 30	10,300	21⅛	21⅛	20¾	21	+ ⅛
.....	....	106¼	98¾	400,000	100	do pfd.	$1.37½Q	Apr. 1, 30	500	101	101	100½	101	— ⅝
40¼	15	37	22⅞	869,255	10	Simms Petroleum Co.	40cQ	Mar. 15, 30	1,200	28¾	29	27½	29	+ ⅝
45	21	32	21⅝	5,455,665	N.P.	Sinclair Consolidated Oil Corp.	50cQ	Apr. 15, 30	20,900	28⅛	28⅜	27½	27¾	— ⅛
111	103	112¼	109	154,685	100	do pfd.	$2Q	May 15, 30	.....	....	....	....	....	.....
46½	42	42	28⅞	1,097,650	$25	Skelly Oil Co.	50cQ	Mar. 15, 30	8,600	35	36¾	34⅞	36	+ 1
....	....	99½	99½	120,000	100	do pfd.	....	.....	1,900	99½	99½	99½	99½	0
....	....	103½	98	750,000	100	S. O. Export Corp. pfd.	....	.....	2,100	103⅜	103⅜	103	103	0
81⅞	51½	75	55½	13,016,434	N.P.	S. O. California	62½cQ	Mar. 15, 30	12,300	70⅛	71	69¼	70½	+ ⅛
....	....	49	37¼	320,000	$25	S. O. Kansas	50cQ	Mar. 15, 30	3,600	40½	41¼	40⅜	40⅞	— ⅛
83	48	84⅞	58	25,443,643	25	S. O. New Jersey	‡25cQ	Mar. 15, 30	201,000	77¾	80⅜	77⅝	80⅜	+ 3¼
48⅛	31¾	40⅜	31¼	17,809,530	25	S. O. New York	40cQ	Mar. 15, 30	24,400	36¼	37½	36	37	+ 1
86⅜	55	70	53	1,416,911	N.P.	Sun Oil Co.	25cQ	Mar. 15, 30	.....	....	....	....	....	.....
105½	100	105⅛	102½	100,000	$100	do pfd.	$1.50Q	June 2, 30	220	104⅝	104¾	104½	104¾	0
24	5¼	9⅜	5¼	1,026,979	N.P.	Superior Oil Corp.	....	.....	2,600	7½	7¾	7¼	7½	— ⅛
71⅞	50	60½	50⅜	9,850,724	$25	The Texas Corp.	75cQ	Apr. 1, 30	17,900	57¾	58½	57⅝	58⅜	+ ⅝
23⅞	9½	14½	8⅞	929,947	10	Texas Pacific Coal & Oil	s2½%	Dec. 31, 29	1,700	10¾	10¾	10½	10⅝	0
23½	10	17¾	10¾	5,881,980	N.P.	Tide Water Associated Oil	30cS.A.	Feb. 15, 30	81,900	15⅞	17¾	15¾	17⅝	+ 1⅞
90⅞	74⅛	89¾	78	732,550	$100	do pfd.	$1.50Q	Mar. 31, 30	2,900	88	88⅝	88	88½	0
40	14	31	19½	2,191,820	N.P.	Tide Water Oil Co.	20cQ	Mar. 31, 30	.....	....	....	....	....	.....
97½	85⅛	94⅞	86½	199,443	$100	do pfd.	$1.25Q	May 15, 30	600	92½	93⅝	92½	93⅝	+ ⅝
....	....	24	16¼	3,339,150	N.P.	Transcontinental Oil	30c	May 1, 30	15,600	19⅞	20⅛	19⅝	19⅝	— ⅛
57	42¾	50	40⅛	2,201,008	$25	Union Oil Co. (California)	‡50cQ	May 10, 30	2,100	45⅛	45⅞	45⅛	45¼	+ ⅛
....	....	38½	32	1,254,048	N.P.	Union Tank Car Co.	40cQ	June 2, 30	400	33	33	33	33	— 1
42⅞	15	27	16⅝	777,603	N.P.	Warner Quinlan Co.	25cQ	Apr. 3, 30	6,400	18½	18½	18⅛	18¼	0
38	25	29½	26	490,000	N.P.	White Eagle Oil & Refg.	50cQ	Apr. 20, 30	.....	....	....	....	....	.....
29¾	12⅞	21	11½	428,967	N.P.	Wilcox Oil & Gas Co.	....	May 10, 28	1,100	18	19	18	19	+ 1

*New high †New low ‡Also extra s-Stock Total sales 751,860

Cleveland Stock Market

May 29	Par Value	Bid	Asked
Canfield Oil Co.	$100	..	135
Fred G. Clark	10	5	7
National Refining	25	30½	33⅞
do pfd.	100	132	134
Paragon Refining	..	14½	15
do certificates	..	14½	15½
do A pfd.	N.P.	..	50

Indian Refining Is Financing

NEW YORK, May 31.—Indian Refining Co. of Lawrenceville, Ill., has notified the New York Stock Exchange it proposes to increase its authorized stock from 1,300,000 to 2,000,000 shares. The company is reported to have completed plans for the issue of $3,500,000 2½-year 5½ per cent notes. Additional funds are reported to be needed for expansion.

CHICAGO, May 29.—The Skelly Oil Co., El Dorado, Kan., recently opened a Chicago division office at 2123 Engineering Bldg. W. S. Rawitzer is in charge with R. E. Roberts as assistant. The Chicago office will handle gasoline and oil sales in Illinois, southern Wisconsin and western Indiana.

Financial Notes

Buckeye Pipe Line Co.—All directors and officers re-elected.

Darby Petroleum Corp.—Stockholders have approved reducing the number of authorized shares from 1,250,000 to 750,000 of no par value and issuing one new share for each two old shares outstanding. The plan provides for stock available for expansion.

Ohio Oil Co.—All directors and officers re-elected.

Signal Oil & Gas Co.—Stockholders have approved an amendment to the articles of incorporation whereby they waive preferential or preemptive rights to subscribe to new shares issued or obligations convertible into stock. S. B. Mosher, president, said in a letter to stockholders: "Your board of directors feels that now is the most advantageous time to provide long-term financing to take care of further expansion and development of the company's activities."

Standard Oil Co. of Indiana—March 31, the end of the first year of the

Pittsburgh Stock Exchange

Transactions Week Ended May 29, 1930

	Sales	High	Low	Last	Change
Ark. Nat. Gas.	505	12⅜	12	12	— ⅛
do pfd.	235	8	8	8	0
Devonian Oil.	295	11½	10½	11½	+1⅛
Leonard Oil.	475	3	†2⅜	2⅝	— ⅛
Lone Star Gas.	7,951	52½	48⅝	49	—3½
Ohio Oil & Gas.	125	1	1	1	— ½
Plymouth Oil.	20	22	22	22	0
Phoenix Oil.	4.500	.70	.65	.65	0
Shamrock Oil & Gas	10,225	24	22¼	24	+1½
Shamrock O. & G. 6s.	$9000	103	101¾	103	+1
Lone Star rights.	12,532	4⅜	4⅛	4⅜	+ ⅛

Pittsburgh Curb Market

Transactions Week Ended May 29, 1930

	Sales	High	Low	Last	Change
Arkansas Gas A.	20	12	12	12	—1

third employes' stock purchase plan, 16,415 employes were participating. This compares with 15,022 at the end of the first year of the second purchase plan.

Standard Oil Co. of New York—E. R. Rich, vice-president of General Petroleum Corp. of California, has been elected a director of the parent company. Other directors were re-elected. C. H. Longshore, formerly with Acewood Petroleum Corp. and Richfield Oil Corp. of New York, June 1 joined the marketing staff of the Standard of New York.

Solar Refining Co. — Semi-annual dividend due at this time has been omitted. This is the first dividend passed by this company since the dissolution of the old Standard Oil Co. of New Jersey.

Pan American Earnings Fall 2 Per Cent

CLEVELAND, May 31.—Pan American Petroleum & Transport Co. profits in 1929 were a little more than 2 per cent less than in 1928. Its net last year averaged $2.92 a share on 3,360,698 common and class B shares as compared with $3 a share on 3,360,649 shares outstanding in 1928. Shares are of $50 par each.

Pan American's principal subsidiary, Mexican Petroleum Co. of Delaware, netted $11.13 a share on 457,300 $100 par common shares after dividends on the 8 per cent preferred stock. In 1928 Mexican Petroleum averaged $16.03 on the common. After payment of preferred dividends and regular, and $40 extra on the common, Mexican Petroleum had a deficit of $18,687,732.

Creole Petroleum Co., controlled by Standard Oil Co. of New Jersey, doubled its gross income in 1929 over 1928 income. Its net earnings last year were approximately four times larger. Its average earnings were 41 cents a share on the no par common as compared with 10 cents a share the year before.

Richfield Oil Co. of California's earnings the first quarter of 1930 were less than half its earnings the first three months of 1929. This was because of curtailment of crude production and low gasoline prices this year, the company stated.

Warner Quinlan Co. reported a loss for the first quarter of 1930 because of the low markets for its products. The company reported that sales of its new gasoline, Warnoco, which was introduced in April and is selling at 5 cents premium, were developing rapidly.

Earnings statements follow:

Year	1929	1928
Pan American Petroleum..	$9,825,992	$10,071,576
Mexican Petroleum.....	6,051,518	8,293,338
Creole Petroleum	2,434,189	611,731
First Quarter	**1930**	**1929**
Richfield Oil Co.	$936,740	$1,927,262
Warner Quinlan	*310,557	211,207

*Loss.

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Standard Oil Stocks on New York Curb

1929 High	1929 Low	1930 High	1930 Low	Outstanding Shares	Par Value	Companies	Div. Rate	Last Paid	Transactions Sales	Week Ended May 31 First	High	Low	Last	Change
18¾	13½	18½	12¼	.. ..	£1	Anglo-Amer. Oil voting stk. ctfs..	36c	June 5, 29	.....	....	....	....	....	.....
17⅜	11	19	12	.....	£1	do non-voting stk. ctfs.....	36c	June 5, 29	.....	....	....	....	....	.....
2½	¾	1	½	500,000	N.P.	Atlantic Lobos Oil.....	....	.....	100	¾	¾	¾	¾	0
4⅛	1	1½	1¼	200,000	$50	do pfd.....	....	.....	.....	....	....	....	....	.....
46½	25	25	20	40,000	25	Borne Scrymser Co.....	$1S.A.	Apr. 15, 30	.....	....	....	....	....	.....
74¼	55	69	57	200,000	50	Buckeye Pipe Line Co.....	$1Q	Mar. 15, 30	200	59½	61	59½	61	+ 2
210	130	184⅞	155	120,000	25	Chesebrough Mfg. Co.....	‡$1Q	Mar. 31, 30	100	171¾	171¾	171¾	171¾	+ ¼
11¾	5⅜	7½	5⅜	.....	N.P.	Creole Petroleum Co.....	....	.....	18,100	6	7	6	7	+ 1
75¾	40	65¾	40½	30,000	$ 50	Cumberland Pipe Line Co.....	$1Q	Mar. 15, 30	250	57	60	57	60	+ 5¼
70½	42	54¾	43	50,000	100	Eureka Pipe Line Co.....	$1Q	May 1, 30	.....	....	....	....	....	.....
....	....	6¾	2½	280,000	N.P.	Galena Oil Corp. w.i.....	....	.....	2,200	6½	6½	6¾	6½	+ ¼
....	....	37¼	32	.....	N.P.	General Petroleum Corp. w.i.....	....	.....	400	34	34	34	34	— ½
128	74⅛	119	78	2,974,645	$25	Humble Oil & Refg. Co.....	50cQ	Apr. 1, 30	6,800	103	104½	101½	104	+ 1
41	22	30	22⅛	26,490,741	N.P.	Imperial Oil, Ltd.....	12½cQ	June 2, 30	3,800	25½	25⅞	24⅝	25½	+ 1½
42⅛	26	41	37	300,000	$10	Indiana Pipe Line Co.....	50cQ	May 15, 30	400	37⅝	37⅝	37½	37½	— 1¼
29⅜	15	24	17⅞	14,247,880	N.P.	International Petroleum Co.....	25c	Mar. 15, 30	2,600	20⅜	21	20⅜	20¾	+ ½
25⅞	10½	22⅜	18⅜	509,000	$12½	National Transit Co.....	25cQ	Mar. 15, 30	900	19	19	18¾	18¾	— ¾
17¾	10	21	14	100,000	10	New York Transit Co.....	‡40cQ	Apr. 15, 30	900	21¼	21⅜	20½	20¾	— ¾
63	41	54	37	40,000	50	Northern Pipe Line Co.....	$2S.A.	Jan. 2, 30	.....	....	....	....	....	.....
79⅞	64⅛	74⅞	66⅛	2,400,000	25	Ohio Oil Co.....	‡50cQ	Mar. 15, 30	1,100	72	73	71⅞	73	+ 1
105½	103¾	108	103	600,000	100	do pfd.....	$1.50Q	June 14, 30	600	104	105	104	105	— 2
44½	18⅝	32	20	400,000	25	Penn Mex. Fuel Co.....	$1	May 20, 30	100	22½	22½	22½	22½	0
50	29	33	21	160,000	25	Solar Refining Co.....	$1.25S.A.	Dec. 20, 29	200	21½	21½	†21	21	— 1¼
23½	13	20⅜	13	100,000	10	Southern Pipe Line Co.....	$5	June 2, 30	.....	....	....	....	....	.....
60¼	35⅛	45⅞	37½	1,200,000	25	South Penn Oil Co.....	‡50cQ	Mar. 31, 30	6,700	43⅜	43⅜	41	42	— 1½
70	45	64	50	35,000	50	Southwest Pa. Pipe Lines.....	$1Q	Apr. 1, 30	.....	....	....	....	....	.....
63	45	59⅞	49⅞	16,850,587	25	S. O. Indiana.....	62½cQ	Mar. 15, 30	8,300	54⅜	54¾	53⅞	53⅞	— ⅜
46⅞	29	40½	33¼	2,577,124	10	S. O. Kentucky.....	40cQ	Mar. 31, 30	8,100	35⅛	37	35	36⅛	+ 1⅜
50¾	40	48⅞	44⅛	188,159	25	S. O. Nebraska.....	‡62½cQ	Mar. 20, 30	.....	....	....	....	....	.....
129	60	108½	81	560,000	25	S. O. Ohio.....	62½cQ	Apr. 1, 30	100	92⅞	92⅞	92⅞	92⅞	0
124½	113½	122	117⅝	70,000	100	do pfd.....	$1.75Q	June 2, 30	20	118	118	118	118	— ½
18	5⅛	10	8	34,158	25	Swan Finch Oil Corp.....	....	Jan. 15, 29	.....	....	....	....	....	.....
133¾	75⅛	97⅞	85⅜	5,139,887	25	Vacuum Oil Co.....	$1Q	Mar. 20, 30	1,000	87¾	94¾	89¾	94¾	+ 7½

*New high †New low ‡Also extra

Independent Oils on New York Curb

1929 High	1929 Low	1930 High	1930 Low	Par Value	Companies	Transactions Sales	Week Ended May 31 First	High	Low	Last	Change
.72	⅛	⅝	⅛	$1	Amer. Contr. Oilfields	3,200	3/32	¼	⅛	3/32	0
8⅝	1⅛	4½	1½	5	Amer. Maracaibo....	5,500	3¾	3⅞	3½	3¾	— ⅛
4¾	1	1⅜	1¼	10	Argo Oil.....	.....	....	....	....	....	.....
26	3¾	16¾	8¾	N.P.	Arkansas Nat. Gas...	6,000	12⅛	12⅛	11½	11⅞	— ¼
24¾	6½	16⅜	8⅜	N.P.	do Class A.....	8,300	12⅜	12⅜	11⅜	11½	— ⅜
9	4	8⅛	7⅜	10	do pfd.....	.....	....	....	....	....	.....
70	50	28½	20¼	N.P.	British American Oil..	300	20¼	20¼	20¼	20¼	— ¾
4⅞	⅞	2¾	¾	¼	Carib Syndicate.....	800	2	2	1¾	1⅞	0
68½	20	44¼	26½	N.P.	Cities Service.....	105,200	35	35⅛	33⅜	34	— 1⅛
99¼	84	93⅞	88	100	do pfd.....	1,400	93	93¼	92¾	92⅞	— ½
9¼	8	9	8¼	10	do pref. B.....	100	8⅜	8⅜	8⅜	8⅜	— ⅛
96	81	85	82	100	do pref. BB.....	.....	....	....	....	....	.....
1½	¼	3/16	¼	1	Colombia Syndicate..	1,400	½	½	⅜	⅜	— ⅛
15	3⅞	8¼	5	N.P.	Colon Oil Corp.....	900	5½	5½	†5	5	— ¾
....	....	21	11½	N.P.	Columbia Oil & Gas...	16,400	13½	14	13	13	— ⅜
11⅜	2½	5⅞	3⅞	10	Consolidated Royalty	200	4	4	4	4	0
135	42	74¾	45	N.P.	Cosden Oil Co.....	1,400	57⅜	57½	56¼	56¼	— ¾
87	55	70	61	100	do pfd.....	.....	....	....	....	....	.....
2½	¼	1	¼	N.P.	Crown Central Pet...	.....	....	....	....	....	.....
11¾	4	....	....	N.P.	Crystal Oil.....	.....	....	....	....	....	.....
51⅜	51⅜	....	....	100	do pfd.....	.....	....	....	....	....	.....
26	6½	12⅞	7¼	N.P.	Darby Petroleum....	1,400	10	10	9½	9⅞	0
....	....	21¾	21½	N.P.	do new.....	.....	....	....	....	....	.....
11	2	11	4½	N.P.	Derby Oil & Refg.....	2,400	8	8	7⅝	7¾	— ¼
44	17	60	30	N.P.	do pfd.....	.....	....	....	....	....	.....
....	....	12	12	10	Devonian Oil.....	.....	....	....	....	....	.....
209	115	166⅞	131¼	$25	Gulf Oil Corp.....	7,800	148⅞	152¼	148⅞	150¾	+ 3⅝
7½	1⅜	4	2¼	N.P.	Homaokla Oil.....	400	3½	3¾	3½	3¾	+ 1½
....	....	47½	35	N.P.	Indian Territory A..	1,800	35⅞	35⅞	35½	35½	— ½
....	....	53½	35⅛	N.P.	do B.....	1,900	35⅞	36	35¾	35¾	— ⅛
2⅞	⅜	1¾	¾	10	Intercontinental Pet..	4,400	1¼	1⅜	1¼	1⅜	0
3⅝	1¼	3	1⅞	N.P.	Kirby Petroleum....	2,800	2⅛	2⅛	2	2	— ¼
6⅛	1	4¾	1⅛	N.P.	Leonard Oil & Dev..	2,900	2¾	2¾	2½	2½	— ⅛
38⅞	18	29	18⅜	N.P.	Lion Oil Refg.....	3,400	26⅜	27	26⅜	27	— ⅛
67⅜	28	55⅞	34⅛	N.P.	Lone Star Gas.....	4,400	52¼	52½	51⅛	52½	+ ⅜
....	....	31	28½	$25	MacMillan Petrol....	.....	....	....	....	....	.....
2⅞	¼	½	¼	1	Magdalena Synd.....	2,900	1/16	1/16	¼	¼	— 1/16
38½	14	16	12	N.P.	Margay Oil.....	400	12½	12½	12½	12½	— 2⅜
6⅜	2¼	7½	2	N.P.	Mexico Ohio Oil.....	700	3½	3½	3⅜	3⅜	— ⅛
....	....	11⅞	7⅞	N.P.	Middle States A.v.t.c.	7,900	8¾	9	8½	8¾	+ ¼
....	....	6	4	N.P.	do Class B. v.t.c.	2,800	4	4⅛	4	4	0
42	8	35¾	18⅞	5	Missouri-Kansas P.L.	36,900	35⅜	*35⅝	35	35⅜	+ ⅞
1¼	¼	¾	⅜	1	Mountain & Gulf Oil..	1,800	½	½	½	½	+ ⅛
22⅞	7	12⅛	8	10	Mountain Producers..	1,900	10¼	10½	10⅛	10¼	0
43⅜	24	41⅜	25⅛	N.P.	Nat. Fuel Gas.....	8,400	40½	40⅝	39	39	— 1⅜
5	2¼	3½	2⅜	$5	New Bradford Oil....	500	2½	2½	†2⅜	2⅜	— ⅛
4¾	3⅛	3½	2⅜	10	New England Fuel...	700	2⅞	2⅞	†2⅜	2⅜	— ⅛
24½	11⅜	16⅞	10⅛	25	N. Y. Pet. Royalty..	.....	....	....	....	....	.....
18½	6⅛	11¼	6⅞	N.P.	North Central Texas	.....	....	....	....	....	.....
19¼	8⅛	11⅜	8⅛	N.P.	Oilstocks Ltd. A.....	500	9½	9½	9	9½	0
18¼	8½	11	8½	N.P.	do B.....	.....	....	....	....	....	.....
26⅝	12⅛	19½	12½	N.P.	Pacific Western Oil...	400	16¾	16¾	16¾	16¾	+ ¼
3½	½	2½	1	N.P.	Pandem Oil.....	17,900	1⅝	1⅝	1	1¼	— ⅜
10½	2¼	4⅜	1⅞	N.P.	Pantepec Oil.....	.....	....	....	....	....	.....
25½	13⅛	13⅜	13½	$25	Paragon Refg. B. ctfs.	.....	....	....	....	....	.....
28	17	29	19⅛	N.P.	Petroleum Corp.....	6,900	25⅞	26⅜	25⅜	26⅛	+ ¼
....	....	5⅞	4¼	....	do warrants.....	4,700	5¼	5½	5¼	5½	+ ¼
37	22	27½	20⅞	N.P.	Plymouth Oil	1,500	22⅛	22¼	†20⅞	22¼	+ ½
16	9	10½	9	$5	Red Bank Oil.....	400	9½	10	9½	10	0
8½	1⅜	5⅜	2⅛	N.P.	Reiter-Foster Oil.....	300	3¼	3¼	3¼	3¼	0
25¼	19	23½	20½	25	Richfield Oil pfd.....	100	20½	20½	†20½	20½	— ⅞
29	13	25	14	N.P.	Root Refining pr. pfd.	4,500	14	*25	†14	22	+ 7
11	3	8⅝	3⅝	N.P.	Ryan Consolidated...	900	6⅝	6⅞	6½	6½	0
5⅞	1⅞	2½	1½	10	Salt Creek Consol....	500	1¾	1¾	1⅝	1⅝	— ⅛
25⅞	9	15¼	10	10	Salt Creek Producers	1,200	12⅜	12⅜	12⅛	12¼	— ⅛
33⅜	10	....	....	25	Shreveport El Dorado	.....	....	....	....	....	.....
....	....	39⅛	39	25	Signal Oil & Gas A..	.....	....	....	....	....	.....
24	9	17	9	N.P.	Southland Royalty..	11,800	14¼	14⅝	13½	14⅜	+ ⅛
12	4	10	5½	5	Sunray Oil.....	4,100	7	7⅝	7	7½	+ ⅛
23	7⅛	15	8⅜	N.P.	Texon Oil & Land...	4,100	12	*15	11½	14½	+ 3⅛
81⅛	8⅞	16	8	10	Venezuela Mexico....	.....	....	....	....	....	.....
6½	1⅜	4½	2¼	5	Venezuela Petroleum.	600	3	3	2⅞	2⅞	0
9⅛	2	4¾	2	1	Woodley Petroleum..	.....	....	....	....	....	.....
5⅜	¼	2½	½	N.P.	Y Oil & Gas.....	900	1½	1⅞	1⅛	1½	— ⅛

*New High †New Low

New York Bonds

Week Ending May 30

	High	Low	Last	Change
Assoc. Oil gold 6s.....	103	103	103	0
Atlantic Refg. deb. 5s...	101¾	101½	101½	0
Cal. Pet. 5s.....	99⅞	99⅝	99⅞	+ ⅛
Cal. Pet. 5½s.....	102⅜	102	102¼	— ⅛
General Pet. 5s.....	102	101½	101⅝	+ ⅛
Humble Oil & Refg. 5s..	101⅝	101⅜	101⅝	+ ⅜
Humble Oil & Refg. 5½s	102⅛	101⅞	102	+ ⅛
Pan Amer. P & T 6s.....	106	105	105	0
Pan Amer. P & T 6s.....	95	95	95	0
Phillips Pet. 5⅛s.....	96½	96	96½	0
Pure Oil 5½s.....	100⅜	100	100¼	0
Pure Oil 5½s.....	98½	98	98¼	0
Richfield Oil Calif. 6s....	96	94¾	96	0
Shell Union Oil 5s.....	96⅞	96¼	96¼	0
Shell Union Oil 5s with war.	99⅞	99½	99½	— ⅛
Sinclair Con. Oil 7s.....	103⅜	103	103⅜	— ⅜
Sinclair Con. Oil 6½s....	102⅜	101⅞	101¼	0
Sinclair Con. Oil 6s D....	100½	100⅜	100⅜	— ⅛
Sinclair Con. Crude 5½s	100¾	100	100¾	+ ¾
Sinclair Pipeline 5s.....	97¾	97⅛	97½	+ ¼
Skelly Oil 5½s.....	96⅜	96	96⅜	+ ⅜
S. O. N. J. 5s.....	104⅛	103¼	103⅞	+ ⅛
S. O. N. Y. 4½s.....	97⅝	97¼	97¼	— ½
Transcontinental Oil 6½s war.....	102	101¼	101½	— ⅛
do ex-war.....	97¼	96½	97	+1½
Union Oil of Calif. 6s A..	108	107⅞	107⅞	— ⅛
Union Oil of Calif. 5s C..	100¼	100	100	0
Warner-Quinlan 6s.....	90	90	90	—2

New York Curb Bonds

Week Ending May 30

	High	Low	Last	Change
Cities Serv. 5s '66.....	84¾	84⅜	84⅝	— ⅜
Cities Serv. G. 5½s '42..	88⅛	87⅜	88⅛	+ ⅝
Cities Serv. G. P. 6s '43.	93½	92¾	93½	+ ¾
Cont. Oil 5¼s '37.....	96½	96	96¼	+ ¼
Empire O & R 5½s '42..	87¼	86⅜	87	0
Gulf Oil 5s '37.....	101	101	101	— ¼
Gulf Oil 5s '47.....	101⅛	101⅛	101⅛	— ⅞
Indep. Oil 6s '39.....	105¼	104¾	105	+ ¾
Pure Oil 5½s '40.....	98½	98	98½	+ ⅜
Sun Oil 5½s '39.....	102½	102¼	102½	+ ¼
Union Oil Calif. 5s '45....	100	99¾	100	+ ¼
Valvoline Oil 7s '37....	103	102¾	102¾	0

Oil Dividends

	Amount	Payable	Stock of Record
Honolulu Cons., q.....	50c	June 16	June 5
Humble Oil & Refg. q....	50c	July 1	May 31
International Petrol....	25c	June 16	May 31
Pure Oil 5¼% pfd. q....	$1.25	July 1	June 10
do 6% pfd. q.....	$1.50	July 1	June 10
do 8% pfd q.....	$2	July 1	June 10
South Penn Oil q.....	50c	June 30	June 14
do extra.....	12½c	June 30	June 14
S. O. Export pfd. s.a.....	$2.50	June 30	June 9
S. O. Kentucky q.....	40c	June 30	June 16
do extra.....	20c	June 30	June 16
S. O. Ohio q	62½c	July 1	June 13
Warner Quinlan q.....	25c	July 3	June 12